Standards Change Request

Multiple occurrences of the same keyword in an object - Valid or Not? **SCR 3-1126.v4**

Provenance:

Submitted
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Problem:

A Rosetta team has presented a draft label that contains multiple occurrences of the SPICE_FILE_NAME and NOTE keywords. A medium-depth search of the PDS standards documents reveals no PDS standard for how to deal with repeated keywords. The lvtool (current release 2.20) flags this as a warning of the same severity as an unmatched standard value (i.e., the sort of warning we expect to be cleaned up prior to or at final delivery). VTool does not flag the multiple occurrences of these keywords at all. If multiple occurrences of a single keyword within an object is valid, the PDS standards should say so and provide an indication of the significance of a repeated keyword (are the values concatenated into a series or sequence, or does one overwrite another and in what order)? If multiple occurrences are not valid, the PDS standards need to say so explicitly.

Current Urgency:

Medium

Proposed Solution:

Modify the text of the Standards reference to stipulate that elements can have only a single occurrence within a given object context.

Impact Assessment:

PDS Standards Reference – Changes as described in "Requested Changes"

Archive Preparation Guide – no impact

Proposer's Archive Guide – no impact

Planetary Science Data Dictionary – no impact

PDS tools – Add checks for multiple occurrences of element, and indicate an error if found.

PDS Web Site: - no impact

External Agencies – no impact

External Interfaces – no impact?

Compliance/compatibility with ODL and ISO Standards – no impact

Additional Information:

References to "Elements" occur throughout the Standards Reference. No label examples were found that used multiple occurrences of elements. The sections that pertain to elements within objects are:

12.4 Statements
12.4.2 Attribute Assignment Statement

Figures which use Pointers
Figure 5.2 PDS Attached / Detached Label Structure
Figure 5.6 Data Object Pointers – Detached & Combined Labels

Needed input
EN should report what action is taken by ingestion tools upon encountering repeated keywords. This would be useful input in determining impact of changes and what changes might require more work than others.

Requested Changes:

Add the following text in Section "5.2.1 Attached and Detached Labels" before text the reads "Figure 5.2 provides a…"

> Identifiers, pointers and descriptive data elements with a given keyword can have only a single occurrence within a given Object context. This is true whether in an implicit or explicit Object. If an assignment or pointer has multiple values it must be represented using either the set or sequence syntax, as appropriate.

Add the following text prior to the examples in section "12.4.2 Attribute Assignment Statement".

> Attribute identifiers used in attribute assignment statements can have only a single occurrence within a given Object context. This is true whether in an implicit or explicit Object. If multiple values are to be assigned, they must be provided in either a set or a sequence, as appropriate. An attribute identifier consists of an element identifier with an optional namespace identifier. In the PDS standards documentation, an element identifier is also commonly called either a data element name or a keyword.

Add the following section (to re-enforce the statement in the introduction).

> 12.4.4.2 PDS Usage of OBJECT
>
> Within an Object an "attribute_assignment_statement" with a given "attribute_identifier" can have only a single occurrence. If an attribute assigment has multiple values it must be represented using either the set or sequence syntax, as appropriate.

Add the following text to the section "12.4.5.2 PDS Usage of Group"

> Within a Group an "attribute_assignment_statement" with a given "attribute_identifier" can have only a single occurrence. If an attribute assignment has multiple values it must be represented using either the set or sequence syntax, as appropriate.