# The 39th joined meeting of the CIDOC CRM SIG and ISO/TC46/SC4/WG9 and the 32nd FRBR - CIDOC CRM Harmonization meeting

[ICS-FORTH](http://www.ics.forth.gr/index_main.php?l=e&c=511)

N. Plastira 100, Vassilika Vouton Heraklion - Crete

Room: Stelios Orphanoudakis (1st floor)

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Draft comments from the LRM discussion

## FRBRoo classes

### F1 Work

Subclass of: [E89](#_E1_CRM_Entity) Propositional Object

Superclass of: [F14](#_F20_Self-Contained_Expression) Individual Work (deprecate)

[F15](#_F15_Complex_Work) Complex Work (deprecate)

[F16](#_F16_Container_Work) Container Work

[F21](#_F21_Recording_Work) Recording Work

Scope note: This class comprises distinct concepts or combinations of concepts identified in artistic and intellectual expressions, such as poems, stories or musical compositions. Such concepts may appear in the course of the coherent evolution of an original idea into one or more expressions that are dominated by the original idea. The conceptual content of a Work can evolve over time, such as through revised editions. A Work may be elaborated by one or more Actors simultaneously or over time. The substance of Work is ideas. A Work may have members that are works in their own right.

~~A Work can be either~~ *~~individual~~* ~~or~~ *~~complex~~*~~. If it is individual its concept is completely realised in a single F22 Self-Contained Expression. If it is complex its concept is embedded in an F15 Complex Work. An F15 Complex Work consists of alternative members that are either F15 Complex Works themselves or F14 Individual Works~~.

[To get rid off the F14 and F15 and then to revixe the scope note]

The work is alwas explicit to expression and to make a statement that it isntaisted if we encounter more than one expression of the same work

A work comes into existence with the creation of its first expression. A work only exists if at least one expression exists. Additional expressions of the work can continue to be created over time.

A Work is the product of an intellectual process of one or more persons, yet only indirect evidence about it is at our hands. This can be contextual information such as the existence of an order for a work, reflections of the creators themselves that are documented somewhere, and finally the expressions of the work created. As ideas normally take shape during discussion, elaboration and imp lementation, it is not reasonable to assume that a work starts with a complete concept. In some cases, it can be very difficult or impossible to define the whole of the concept of a work at a particular time. The objective evidence for such a notion can only be based on a stage of expressions at a given time. In this sense, the sets of ideas that constitute particular self-contained expressions may be regarded as a kind of “snap-shot” of a work.

A Work may include the concept of aggregating expressions of other works into a new expression. For instance, an anthology of poems is regarded as a work in its own right that makes use of expressions of the individual poems that have been selected and ordered as part of an intellectual process. This does not make the contents of the aggregated expressions part of this work, but only parts of the resulting expression.

Examples: Abstract content of Giovanni Battista Piranesi’s ‘Carcere XVI: the pier with chains: 1st state’ (F14)

‘La Porte de l’Enfer’ by Auguste Rodin conceived between 1880 and 1917 (F15)

‘Hamlet’ by William Shakespeare (F15)

Properties**:** [R1](#_R1_is_logical_1) is logical successor of (has successor): [F1](#_F1_Work_1) Work

(it should be added a relation it is inspired by)

[R2](#_R2_is_derivative) is derivative of (has derivative): [F1](#_F1_Work_1) Work (we should revise this since we don’t have the F14)

We should clarify since it might be recognizable pieces)(R2.1 has type: [E55](#_E55_Type_) Type)

[R3](#_R3_is_realised_1) is realised in (realises): [F22](#_F22_Self-Contained_Expression) Self-Contained Expression (this is exactly the same)

[R40](#_R40_has_representative_expression_() has representative expression (is representative expression for): [F22](#_F22_Self-Contained_Expression) Self-Contained Expression we should preserve in some form

### F2 Expression

Subclass of: [E73](#_E73_Information_Object_) Information Object

Superclass of: [F22](#_F22_Self-Contained_Expression) Self-Contained Expression [revise F2 to merge with F22—all expressions are self-contained]

[F23](#_F23_Expression_Fragment) Expression Fragment [deprecate F23, use E90 instead, as the fragment is not actually an expression—Patrick: This might have consequences on the SAWS project http://www.ancientwisdoms.ac.uk/] to check the emails “what is the ontological notion of page” is it a fragment or is it a compliment of a self contained expression; is it a manifetastaion level concept]

[F34](#_F34_KOS) KOS (just check )

[F35](#_F35_Nomen_Use) Nomen Use Statement (it was the presctive part)

[F43](#_F43_Identifier_Rule_1) Identifier Rule (just check to see along with linked open data rules )

Scope note: This classcomprises the intellectual or artistic realisations of *works* in the form of identifiable immaterial objects, such as texts, poems, jokes, musical or choreographic notations, movement pattern, sound pattern, images, multimedia objects, or any combination of such forms that have objectively recognisable structures. The substance of F2 Expression is signs.

Expressions cannot exist without a physical carrier, but do not depend on a specific physical carrier and can exist on one or more carriers simultaneously. Carriers may include human memory. . (an interesting thing to solve is how we deal with parts of expressions? )

Inasmuch as the form of F2 Expression is an inherent characteristic of the F2 Expression, any change in form (e.g., from alpha-numeric notation to spoken word, a poem created in capitals and rendered in lower case) is a new F2 Expression. Similarly, changes in the intellectual conventions or instruments that are employed to express a *work* (e.g., translation from one language to another) result in the creation of a new F2 Expression. Thus, if a text is revised or modified, the resulting F2 Expression is considered to be a new F2 Expression. Minor changes, such as corrections of spelling and punctuation, etc., are normally considered variations within the same F2 Expression. On a practical level, the degree to which distinctions are made between variant *expressions* of a *work* will depend to some extent on the nature of the F1 Work itself, and on the anticipated needs of users (its identical with the new text)

The genre of the work may provide an indication of which features are essential to the expression. In some cases, aspects of physical form, such as typeface and page layout, are not integral to the intellectual or artistic realisation of the *work* as such, and therefore are not distinctive criteria for the respective expressions. For another work, features such as layout may be essential. For instance, the author or a graphic designer may wrap a poem around an image.

[The identity of an expression has different levels, and depend on the level at which the symbols are relevant—to cover the criteria varying depending on characteristics. More specific identity criteria can be included in less specific criteria. The level of specificity of symbols cannot be globally defined (typeface, etc is not globally significant, nor is spelling]

[Expressions may be extant, fragmentary or lost. This affects how we determine identity conditions: if extant, we use the symbolic content of the expression; if fragmentary: we are reconstructing based on the fragments we have; if expressions are lost, we have only evidence in historical sources]

An expression of a work may include expressions of other works within it. For instance, an anthology of poems is regarded as a work in its own right that makes use of expressions of the individual poems that have been selected and ordered as part of an intellectual process. This does not make the contents of the aggregated expressions part of this work, but only parts of the resulting expression. (this paragraph is problematic, we need to clarify, to revise to rephrase, to look at the manifestation product type) to check as an example needs to document the book of the dead

[Critical edition: we should take a position for digital humanties. It is needed to be described that this work is the bridge between library work and scholarly work, we need to find someone to apply FRBRoo to critical editions—Christian-Emil]

If an instance of F2 Expression is of a specific form, such as text, image, etc., it may be simultaneously instantiated in the specific classes representing these forms in CIDOC CRM. Thereby one can make use of the more specific properties of these classes, such as language (which is applicable to instances of E33 Linguistic Object only).

[At the last meeting it was said that Manifestation is both a subclass of Publication Expression and Product Type. So it is a sub-subclass of Expression (plus a subclass of sthing else)]

[Issue of paging, relevant to digitisation, finding the identity criteria—matching the page to the expression that it belongs to. Can use P106 is composed of, to relate the text on a page to the whole. The text found on a page breaks at symbol boundaries, not necessarily at word or sentence boundaries. It is an E90. Relates to the F24 Publication Expression. Two structure systems ongoing: symbolic structuring (pages, lines etc) and also logical structuring (chapters, paragraphs, sections of content)

Examples: The Italian text of Dante’s ‘Divina Commedia’ as found in the authoritative critical edition ‘*La Commedia secondo l’antica vulgata a cura di Giorgio Petrocchi’*, Milano: Mondadori, 1966-67 (= Le Opere di Dante Alighieri, Edizione Nazionale a cura della Società Dantesca Italiana, VII, 1-4) (F22 and E33)

The Italian text of Dante’s ‘Inferno’ as found in the same edition (F22 and E33)

‘Nel mezzo del cammin di nostra vita  
mi ritrovai per una selva oscura  
ché la diritta via era smarrita’ [the Italian text of the first stanza of Dante’s ‘Inferno’ and ‘Divina Commedia’] (F23 and E33)

The signs which make up Christian Morgenstern’s ‘Fisches Nachtgesang’ [a poem consisting simply of ‘—’ and ‘˘’ signs, arranged in a determined combination] (F22)

Properties**:** [R4](#_R4_carriers_provided) carriers provided by (comprises carriers of): [F3](#_F3_Manifestation_Product) Manifestation Product Type

[R5](#_R5_has_component) has component (is component of): [F22](#_F22_Self-Contained_Expression) Self-Contained Expression

[R15](#_R15_has_fragment_) has fragment (is fragment of): [F23](#_F21_Complex_Work) Expression Fragment

[R41](#_R41_has_representative_manifestatio) has representative manifestation product type (is representative manifestation product type for): [F3](#_F3_Manifestation_Product) Manifestation Product Type (it might be not needed)

### F3 Manifestation Product Type

It seems to be identical with the manifestation in LRM, we should include something about manifestation singleton as in LRM

Whatever manuscript we have there is a manifestation. If we consider production planning we may have problem.

In LRM manifestation is a publication expression

[Revise scope notes to combine F24 Publication Expression with F3]

Subclass of: [E55](#_E55_Type_) Type [actually can now go to E99 Product type]

[E72](#_E72_Legal_Object_1) Legal Object

Scope note: This class comprises the definitions of publication products.

An instance of F3 Manifestation Product Type is the “species”, and all copies of a given object are “specimens” of it. An instance of F3 Manifestation Product Type defines all of the features or traits that instances of F5 Item normally display in order that they may be recognised as copies of a particular publication. However, due to production problems or subsequent events, one or more instances of F5 Item may not exhibit all these features or traits; yet such instances still retain their relationship to the same instance of F3 Manifestation Product Type.

The features that characterise a given instance of F3 Manifestation Product Type include: one instance of F24 Publication Expression, containing one or more than one instance of F2 Expression, reflecting the authors’ content of the manifestation and all additional input by the publisher; and the appropriate types of physical features for that form of the object. For example, hardcover and paperback are two distinct publications (i.e. two distinct instances of F3 Manifestation Product Type) even though authorial and editorial content are otherwise identical in both publications. The activity of cataloguing aims at the most accurate listing of features or traits of an instance of F3 Manifestation Product Type that are sufficient to distinguish it from another instance of F3 Manifestation Product Type.

Examples: The publication product containing the text entitled ‘Harmonie universelle’ (authored by the person named ‘Marin Mersenne’), issued in 1636 in Paris by the publisher named ‘Sébastien Cramoisy’

The publication product containing a modern reprint of Marin Mersenne’s ‘Harmonie universelle’, issued in 1986 in Paris by the publisher named ‘Les éditions du CNRS’, and identified by ISBN ‘2-222-00835-2’

The publication product containing the third edition of the combination of texts and graphics titled ‘Codex Manesse: die Miniaturen der großen Heidelberger Liederhandschrift, herausgegeben und erläutert von Ingo F. Walther unter Mitarbeit von Gisela Siebert’, issued by the publisher named ‘Insel-Verlag’ in 1988

The publication product containing the cartographic resource titled ‘Ordnance Survey Explorer Map 213, Aberystwyth & Cwm Rheidol’, issued in May 2005 by the publisher named ‘Ordnance Survey’ and identified by ISBN ‘0-319-23640-4’ (folded), 1:25,000 scale

The publication product containing the recordings of musical works performed by the person named ‘Florence Foster Jenkins’ gathered under the title ‘The Glory (????) of the human voice’, identified by label and label number ‘RCA Victor Gold Seal GD61175’ *(Note: the four question marks within parentheses belong to the title itself)*

Properties**:** [CLP2](#_CLP2_should_have_type_(should_be_ty) should have type (should be type of): [E55](#_E55_Type_) Type

[CLP43](#_CLP43_should_have) should have dimension (should be dimension of): [E54](#_E54_Dimension_) Dimension

[CLP45](#_CLP45_should_consist) should consist of (should be incorporated in): [E57](#_E57_Material_) Material

[CLP46](#_CLP46_should_be) should be composed of (may form part of): [F3](#_F3_Manifestation_Product) Manifestation Product Type

[CLP57](#_CLP57_should_have) should have number of parts: [E60](#_E60_Number_1) Number

[CLP104](#_CLP104_subject_to) subject to (applies to): [E30](#_E30_Right_1) Right

[CLP105](#_CLP105_right_held) right held by (right on): [E39](#_E39_Actor_) Actor

[CLR6](#_CLR6_should_carry) should carry (should be carried by): [F24](#_F24_Publication_Expression) Publication Expression [not needed if F3 and F24 are merged]

### F4 Manifestation Singleton

We may get rid of this—2017-10: either deprecate this or make it a subclass of F5 Item and revise scope of F5: no, the class hierarchy makes this not work! Once F3 is merged with F24, it is not so obvious to also merge with F4. Conclusion: do not change it]

Subclass of: [E24](#_E24_Physical_Man-Made_1) Physical Man-Made Thing

Scope note: This class comprises physical objects that each carry an instance of F2 Expression, and that were produced as unique objects, with no siblings intended in the course of their production. It should be noted that if all but one copy of a given publication are destroyed, then that copy does not become an instance of F4 Manifestation Singleton, because it was produced together with sibling copies, even though it now happens to be unique. Examples of instances of F4 Manifestation Singleton include manuscripts, preparatory sketches and the final clean draft sent by an author or a composer to a publisher.

Examples: The manuscript known as ‘The Book of Kells’

The manuscript score of Charles Racquet’s ‘Organ fantasy’, included in Marin Mersenne’s personal copy of his own ‘Harmonie universelle’ [Marin Mersenne planned a second edition of his ‘Harmonie universelle’ after it had been first published in 1636, and he asked the composer Charles Racquet to compose his organ fantasy especially for that planned second edition; but Mersenne died before he could finish and publish the second edition and Racquet’s score remained until the 20th century as a manuscript addition to Mersenne’s copy, held in Paris by the Library of the Conservatoire national des arts et métiers]

Marin Mersenne’s personal copy, held in Paris by the Library of the Conservatoire national des arts et métiers, of his own ‘Harmonie universelle’, containing all of his manuscript additions for a planned second edition that never took place before his death, but that served as a basis for the modern reprint published in 1986

[to handle the bound-with “manifestations”, prefer to bring the Storage Unit class from PRESSoo into FRBRoo, so that the combination or splitting of items from different manifestations is handled outside the WEMI stack]

Properties: [R42](#_R42_is_representative_1) is representative manifestation singleton for (has representative manifestation singleton): [F2](#_F2_Expression) Expression we don’t need it as with the R41

### F5 Item

We may distinguish items that are compatible with the manistation and items that are not

[Items may be made up of multiple Storage Units.]

[PLB: I'm realizing that with the introduction of Storage Unit, Item is in a sense no longer physical, it's still a merely bibliographical entity (the "idea" of a complete exemplar of a given publication of which all exemplars are supposed to be in 2 volumes). The only physical thing is Storage Unit.

MD: but items are still physical, made of materials. Consider a pen+cap, it is 2 pieces, but they are intended to stay together]

[Patrick Le Boeuf: What I meant about Item/Storage Unit was that it now occurs to me that the original Item notion in FRBR tended to put together the legal notion of "holdings" and the physical notion of exemplar. If we regard "Item" not as a physical exemplar but as the right we have on a given physical exemplar, then Item is not a class of physical things but rather a subclass of E30 Right. Even when a Storage Unit is lost, we still claim that we "hold" the exemplar (i.e., that we have a right of property on it), and we still publish that information in our catalogues. Regarding Item as a particular subtype of Right might solve the "Digital Item" issue. Clémdnt Oury argued that defining the Item of digital publications as a segment of a hard disk was irrelevant and that what was important about digital items was the metadata added to Publication Expression and stating who owned the digital item. However, I don't want to slow down the discussion. We lived very well during 20 years with the idea that Item was physical, and we ca go on like that...]

[Indicate how an instance comes into existence, and how it is destroyed: it is not destroyed as long as it is functional wrt the expression embodied, even if modified considerably. So a palimpsest is the destruction of the item of the original item to allow the creation of a new item. Any reuse of the carrier (recording of the cassette) destroyed the item. Also the actual destruction of the physical carrier.

Modification of Items can also result in distinct Storage Units (e.g. "bound with" or interleaved exemplars) this is not destruction.

Subclass of: [F54](#_F54_Utilized_Information) Utilised Information Carrier

Scope note: This class comprises physical objects (printed books, scores, CDs, DVDs, CD-ROMS, etc.) that carry a F24 Publication Expression and were produced by an industrial process involving an F3 Manifestation Product Type. [any repeatable production process, including hand-press printing]

Examples: Marin Mersenne’s personal copy of his own ‘Harmonie universelle’ without any manuscript addition and without Charles Racquet’s manuscript score, as a mere witness of the 1st edition of ‘Harmonie universelle’, Paris, 1636 [the same physical object can be regarded at the same time as an instance of F5 Item inasmuch as it is a witness of a publication, and as an instance of F4 Manifestation Singleton inasmuch as it contains manuscript annotations and additions and as it served as the basis for a subsequent production process]

Any other copy of the original edition of Marin Mersenne’s ‘Harmonie universelle’, Paris, 1636

Any copy of the modern reprint publication of Marin Mersenne’s ‘Harmonie universelle’, Paris, 1986, ISBN ‘2-222-00835-2’

Properties: [R7](#_R7_is_example) is example of (has example): [F3](#_F3_Manifestation_Product) Manifestation Product Type

### F9 Place

Equal to: [E53](#_E53_Place_) Place [revise this scope note, so that LRM-E10 Place = E53. In the previous practice, classes were created in FRBRoo for all the major FR classes, even when equal to a CRMbase class. Propose to stop this practice, and thus deprecated F9 Place, now exactly equal to E53. In consequence also deprecate F10 Person as it is equal to E21. Also do not create an FRBRoo class for Time-span. Review that the examples retained in CRMbase are adequate, or determine whether the additional examples should only be in the FRBRoo document, in the referred to CRM classes, having extra examples.]

Scope note: This class comprises extents in space, in particular on the surface of the Earth, in the pure sense of physics: independent from temporal phenomena and matter. The instances of E53 Place are usually determined by reference to the position of immobile objects such as buildings, cities, mountains, rivers, or dedicated geodetic marks. A Place can be determined by combining a frame of reference and a location with respect to this frame. It may be identified by one or more instances of E44 Place Appellation.

It is sometimes argued that instances of E53 Place are best identified by global coordinates or absolute reference systems. However, relative references are often more relevant in the context of cultural documentation and tend to be more precise. In particular, we are often interested in position in relation to large, mobile objects, such as ships. For example, the Place at which Nelson died is known with reference to a large mobile object – H.M.S Victory. A resolution of this Place in terms of absolute coordinates would require knowledge of the movements of the vessel and the precise time of death, either of which may be revised, and the result would lack historical and cultural relevance.

Any object can serve as a frame of reference for E53 Place determination. The model foresees the notion of a section of an E19 Physical Object as a valid E53 Place determination. *[Scope Note for E53 Place in CIDOC CRM version 5.0.1]*

Note that Places may be determined by the location of historical or contemporary objects, geographic features, events or geo-political units.

Examples: The area referred to as ‘Lutèce’

The area referred to as ‘verso of the title page of the Library of Congress’s copy of the 1st edition of the novel entitled ‘Da Vinci Code’’

### F10 Person

Equal to: [E21](#_E21_Person_1) Person [based on decision to not repeat in FRBRoo the LRM classes that are exactly equal to CRMbase, F9 should be deprecated.]

Scope note: This class comprises real persons who live or are assumed to have lived. Bibliographic identities or personae assumed by an individual or a group should be modelled as F12 Nomen and connected to the relevant person or group with an instance of F35 Nomen Use Statement, even if nothing more can be said about this person or group. In a bibliographic context, a name presented following the conventions usually employed for personal names will be assumed to correspond to an actual real person (F10 Person), unless evidence is available to indicate that this is not the case. The fact that a persona may erroneously be classified as an instance of F10 Person does not imply that the concept comprises personae.

Examples: Margaret Atwood

Hans Christian Andersen

Queen Victoria

### F12 Nomen [= LRM-E9 Nomen]

Subclass of: [E41](#_E41_Appellation_3) Appellation

Superclass of: [F13](#_F14_Identifier) Identifier

Scope note: This class comprises any sign or arrangements of signs following a specific syntax (sequences of alphanumeric characters, chemical structure symbols, sound symbols, ideograms etc.) that are used or can be used to refer to and identify a specific instance of some class or category within a certain context. The scripts or type sets for the types of symbols used to compose an instance of F12 Nomen have to be explicitly specified. The identity of an instance of F12 Nomen is given by the order of its symbols and their individual role with respect to their scripts, regardless of the semantics of the larger structural components it may be built from. Structural tags occurring in the nomen string are regarded as symbols constituting the nomen. Spelling variants are regarded as different nomina, whereas the use of different fonts (visual representation variants) or different digital encodings do not change the identity.

[The identity condition is not the same the LRM-E9 Nomen is a reified relationship, not just the arrangement of symbols. Identity condition for the LRM string is at the script level, not font. The LRM string (LRM-E9-A1) is a different class than the CRM E62 String, which also includes representation. ]

Examples: ‘杜甫’ [the name of a Chinese poet of the 8th century, in simplified Chinese characters]

‘Du Fu’ [Pinyin romanised form of the name of a Chinese poet of the 8th century]

‘Tu Fu’ [another romanised form of the name of a Chinese poet of the 8th century]

‘Thơ Ðô Phủ’ [Vietnamese form of the name of a Chinese poet of the 8th century]

‘**جامعة صفاقس**’ [Arabic name of the Sfax University (Tunisia), in Arabic script]

‘Ğāmi‘at̀̀ Ṣafāqis’ [Arabic name of the Sfax University (Tunisia), transliterated]

‘Université de Sfax’ [French name of the Sfax University (Tunisia)]

‘3-[(2S)-1-methylpyrrolidin-2-yl]pyridine’ [the IUPAC systematic name for nicotine]

‘Murders in the rue Morgue’ [English title of a textual work]

‘Poe, Edgar Allan, 1809-1849. Murders in the rue Morgue’ (F50) [controlled author/title access point for a textual work]

‘modelling’ [not the activity, just the written signs that represent its English name in British spelling]

‘modeling’ [not the activity, just the written signs that represent its English name in American spelling]

Properties**:** [R33](#_R33_has_content) has content: [E62](#_E62_String) String

(R33.1 has encoding: [E55](#_E55_Type_) Type)

### F13 Identifier

Subclass of: [F12](#_F13_Name) Nomen

Superclass of: [F50](#_F50_Controlled_Access) Controlled Access Point [not needed as an entity/class, a type of LRM-E9 Nomen]

Equal to: [E42](#_E42_Identifier_1) Identifier [deprecate F13, since it is not in LRM and equal to E42. Check if we want to used these examples in E42 or F12]

Scope note: This class comprises strings or codes assigned to instances of E1 CRM Entity in order to identify them uniquely and permanently within the context of one or more organisations. Such codes are often known as inventory numbers, registration codes, etc. and are typically composed of alphanumeric sequences. The class E42 Identifier is not normally used for machine-generated identifiers used for automated processing unless these are also used by human agents. *[Adapted from the Scope Note of CIDOC CRM E42 Identifier ver. 5.0.1]*

Examples: ISSN ‘0041-5278’

ISRC ‘FIFIN8900116’

Shelf mark ‘Res 8 P 10’

‘Guillaume de Machaut (1300?-1377)’ (F50) [a controlled personal name access point that follows the French rules]

‘Guillaume, de Machaut, ca. 1300-1377’ (F50) [a controlled personal name access point that follows the AACR2 rules]

‘Rite of spring (Choreographic work: Bausch)’ (F50) [a controlled access point that follows the AACR2 rules]

Properties: [R8](#_R11_is_composed_of_(forms_part_of)) consists of (forms part of): [E90](#_E90_Symbolic_Object_1) Symbolic Object

### F16 Container Work [this node may not be needed-or prefer this definition?]

Subclass of: [F1](#_F1_Work_1) Work

Superclass of: [F17](#_F17_Aggregation_Work) Aggregation Work

[F19](#_F19_Publication_Work) Publication Work

[F20](#_F20_Performance_Work) Performance Work

Scope note: This class comprises works whose essence is to enhance or add value to expressions from one or more other works without altering them, by the selection, arrangement and/or addition of features of different form, such as layout to words, recitation and movement to texts, performance to musical scores etc. This does not make the contents of the incorporated expressions part of the Container Work, but only part of the resulting expression. Container Work may include the addition of new, original parts to the incorporated expressions, such as introductions, graphics, etc.

This class is an “abstract class,” in that it only serves as an umbrella for its three subclasses. As a consequence, it can only be instantiated by instances of any of its subclasses: nothing can be an instance of it, unless it is an instance of either F17 Aggregation Work, F19 Publication Work, or F20 Performance Work.

A new version of a container work does not make the resulting complex work a Container Work as well. The inclusion of expressions from a complex work in a Container Work does not make the Container Work itself complex.

Examples: The aggregation and arrangement concept of the anthology entitled ‘American Women Poets of the Nineteenth Century: An Anthology’, edited by Cheryl Walker and published by Rutgers University Press in July 1992 (F17)

The concept for the layout created by printer Guido Morris for the text of Michael Hamburger’s English translation of 12 poems by Georg Trakl for publication in 1952 (F19)

The concept by the publisher named ‘Dell’ of issuing together, in 2002, three novels entitled ‘The Partner’, ‘The Street Lawyer’, and ‘A time to kill’, by the author named ‘John Grisham’, with just the statement ‘Three #1 bestsellers by John Grisham’ as a collective title (F19)

The concept of Sergei Radlov’s mise-en-scène of a Yiddish translation of the textual work entitled ‘King Lear’ in Moscow in 1935 (F20)

The concept of putting together the English text of ‘King Lear’ and a Spanish translation thereof in a bilingual edition of ‘King Lear’ (F17)

### F17 Aggregation Work [merge this with F16 Container work, match with LRM “aggregating work”]

Subclass of: [F14](#_F16_Rules) Individual Work

[F16](#_F16_Container_Work) Container Work

Scope note: This class comprises works whose essence is the selection and/or arrangement of expressions of one or more other works. This does not make the contents of the aggregated expressions part of this work, but only part of the resulting expression. F17 Aggregation Work may include additional original parts.

An expression of a work may include expressions of other works within it. For instance, an anthology of poems is regarded as a work in its own right that makes use of expressions of the individual poems that have been selected and ordered as part of an intellectual process.

A new version of an aggregate work does not make the resulting complex work an aggregate work as well. The inclusion of expressions from a complex work in an aggregation work does not make the aggregation work itself complex.

Examples: The aggregation and arrangement concept of the anthology entitled ‘American Women Poets of the Nineteenth Century: An Anthology’, edited by Cheryl Walker and published by Rutgers University Press in July 1992

The aggregation and arrangement concept of the Web site named ‘IFLANET’

The aggregation and arrangement concept of the collection of articles entitled ‘Marij Kogoj (1892-1992): zbornik referatov s kolokvija ob stoletnici skladateljevega rojstva 7.10.1992 v Ljubljani = Marij Kogoj (1892-1992): proceedings from the colloquium held in Ljubljana at the centenary of the composer’s birth on October 7th, 1992’ and edited by a person named ‘Ivan Klemenčič’

### F19 Publication Work

Subclass of: [F16](#_F16_Container_Work) Container Work

Superclass of: [F18](#_F18_Serial_Work) Serial Work

Scope note: This class comprises works that have been planned to result in a manifestation product type or an electronic publishing service and that pertain to the rendering of expressions from other works.

[Revise to clarify that the substance of F19 is in the features of the Manifestation that is to result, and that it is an aggregating/container work, even in the cases where it is very minimal. The Publication Expression has to have a work. The focus is more on the aggregating expression.]

Examples: The concept of publishing Stephen Crane’s complete poems (as edited by Joseph Katz), which includes the idea that every time a stanza jumps over a page change, the statement ‘[NO STANZA BREAK]’ should be printed as a warning for readers that the new page continues the same stanza

The concept, on behalf of publisher named ‘Verlag Neue Kunsthandlung’, of issuing together, around 1925, three formerly independent publications (‘Emil Orlik’ by Max Osborn – vol. 2 within the series named ‘Graphiker der Gegenwart’, published in 1920; ‘Anders Zorn’ by Paul Friedrich – vol. 10 within the series named ‘Graphiker der Gegenwart’, published in 1924; and ‘Max Slevogt’ by Julius Elias – vol. 11 within the series named ‘Graphiker der Gegenwart’, published in 1923) as one, new publication, entitled ‘102 Bilder aus der Sammlung *Graphiker der Gegenwart*’

The concept, on behalf of publisher named ‘Dell’, of issuing together in 2002 three novels, titled ‘The partner’, ‘The street lawyer’, and ‘A time to kill’, by author named ‘John Grisham’, with just the statement ‘Three #1 bestsellers by John Grisham’ as a collective title

### F22 Self-Contained Expression

Subclass of: [F2](#_F2_Expression) Expression [should be subsumed under F2 Expression, all real expressions must be self-contained and express an F1 Work]

Superclass of: [F24](#_F24_Publication_Expression) Publication Expression

[F25](#_F25_Performance_Plan) Performance Plan

[F26](#_F26_Recording) Recording

Scope note: This class comprises the immaterial realisations of individual works at a particular time that are regarded as a complete whole. The quality of wholeness reflects the intention of its creator that this expression should convey the concept of the work. Such a whole can in turn be part of a larger whole.

Inherent to the notion of work is the completion of recognisable outcomes of the work. These outcomes, i.e. the Self-Contained Expressions, are regarded as the symbolic equivalents of Individual Works, which form the atoms of a complex work. A Self-Contained Expression may contain expressions or parts of expressions from other work, such as citations or items collected in anthologies. Even though they are incorporated in the Self-Contained Expression, they are not regarded as becoming members of the expressed container work by their inclusion in the expression, but are rather regarded as foreign or referred to elements.

F22 Self-Contained Expression can be distinguished from F23 Expression Fragment in that an F23 Expression Fragment was not intended by its creator to make sense by itself. Normally creators would characterise an outcome of a work as finished. In other cases, one could recognise an outcome of a work as complete from the elaboration or logical coherence of its content, or if there is any historical knowledge about the creator deliberately or accidentally never finishing (completing) that particular expression. In all those cases, one would regard an expression as self-contained.

Examples: The Italian text of Dante’s ‘Inferno’ as found in the authoritative critical edition *La Commedia secondo l’antica vulgata a cura di Giorgio Petrocchi*, Milano: Mondadori, 1966-67 (= Le Opere di Dante Alighieri, Edizione Nazionale a cura della Società Dantesca Italiana, VII, 1-4)

The musical notation of Franz Schubert’s lied known as ‘Ave Maria’

The musical notation of Franz Schubert’s lieder cycle entitled ‘Seven Songs after Walter Scott’s The Lady of the Lake’, of which ‘Ave Maria’ is a distinct part

The musical notation of Franz Liszt’s piano transcription of Franz Schubert’s lied known as ‘Ave Maria’

The musical notation of fragments of the unfinished string quartet sketched by Arnold Schoenberg in 1926

### F23 Expression Fragment

Subclass of: [F2](#_F2_Expression) Expression [the fragment is not an F2 Expression as it does not express any F1 Work, thus it must be a subclass of E90 Symbolic object. Do not need this class, just use E90 directly as the range of R15]

[link the E90 to an expression: F2 has fragment (some characters) E90. It can be an E73 Linguistic Object (if the fragment has readable words). Fragments can contain smaller fragments

Scope note: This class comprises parts of Expressions and these parts are not Self-Contained Expressions themselves.

The existence of an instance of F23 Expression Fragment can be due to accident, such as loss of material over time, e.g. the only remaining manuscript of an antique text being partially eaten by worms, or due to deliberate isolation, such as excerpts taken from a text by the compiler of a collection of excerpts.

An F23 Expression Fragment is only identified with respect to its occurrence in a known or assumed whole. The size of an instance of F23 Expression Fragment ranges from more than 99% of an instance of F22 Self-Contained Expression to tiny bits (a few words from a text, one bar from a musical composition, one detail from a still image, a two-second clip from a movie, etc.).

Examples: The only remnants of Sappho’s poems [Sappho fragments have to be dealt with as a substitute for a SCExpression, for lack of a "more complete whole” Steve: the evidence for the expression is fragmentary, but not the expression itself (which we do not fully know). I agree with Steve, but what I mean is that what we do have are the "complete set of fragments" of Sappho's poems]

The words ‘Beati pauperes spiritu’ (excerpted from Matthew’s Gospel 5,3 in Latin translation)

### F24 Publication Expression

[Scope covers much the same topics as F3, but note that F24 is a subclass of F2 Expression, F3 is also an E55 Type. Then the distinction with F4 is that there is no publication expression related to those singletons, F4 does not include publication processes that stop (or are stopped) after producing only a single item.

Distinction between publication expressions that in the end were not (or not yet) actually used to create any Items, do we need two classes to cover this? No, it exists regardless or whether any items were produced. Each item results from only one publication expression/manifestation.]

Subclass of: [F22](#_F22_Self-Contained_Expression) Self-Contained Expression

Scope note: This class comprises complete sets of signs present in publications, reflecting publishers’ final decisions as to both selection of content and layout of the publications. Frequently the creation of a Publication Expression includes both adding graphical form and fonts to Expressions consisting of words alone and selecting illustrations and other content. As such, an instance of Publication Expression incorporates all Expressions combined for the resulting final form of rendering, whether visual, audio or tactile. An instance of Publication Expression is one entity regardless of the number of independent Expressions published within it, as long as it represents one unit of release. The published third party content can be associated via the property *P165 incorporates (is incorporated in)*.

Examples: The text, its layout and the textual and graphic (Saur’s logo on p. [i]) content of front and back cover, spine (spine title), and p. [i-iv] of the publication entitled ‘Functional Requirements for Bibliographic Records: final report’, published by K. G. Saur in 1998, identified by ISBN ‘3-598-11382-X’

The overall content of the book identified by ISBN ‘0-8014-9130-4’: the text of Stephen Crane’s complete poems as edited by Joseph Katz, the numbering system introduced by Joseph Katz in order to identify each individual poem by Stephen Crane, page numbers, the text of Joseph Katz’s dedication, preface, acknowledgements, and introduction, the table of contents, the index of first lines, the statements found on title page, back of title page (including CIP bibliographic record), cover front, back front, and spine, and the layout of the publication; for one of Stephen Crane’s longer poems, printed on p. 142-143, a statement reads at bottom of p. 142: ‘[NO STANZA BREAK]’: obviously, this statement does not belong to the Self-Contained Expression intended by Stephen Crane, and presumably not to the one intended by editor Joseph Katz either, but was more probably added by the publishing team, due to characteristics of the layout of the publication: a cautious reader can easily interpret ‘[NO STANZA BREAK]’ as non-belonging to the poem itself, but an OCR process would not make the distinction between the text of the poem and the statement made by the publisher; ‘[NO STANZA BREAK]’ belongs to the Publication Expression, although it does not belong to the Self-Contained Expression intended by Stephen Crane and Joseph Katz

The overall content of the LP sound recording identified by label and label number ‘CBS 34-61237’: a recorded performance of Terry Riley’s musical work ‘In C’, the text of liner notes by Paul Williams translated into French by Bernard Weinberg, technical statements such as ‘Stereo,’ publisher’s logo, series logo, title and statement of responsibility on front, back, and spine of the cover and on the recording itself, duration statement, cover art by G. Joly, overall layout, etc.; a special, shunting sound was added at the end of side one and beginning of side two, as Terry Riley’s work is in the form of a continuous musical flow without any interruption and the technical possibilities of vinyl LPs did not allow the complete performance to be contained on just one side: that special, shunting sound was not intended in Riley’s score nor in the performance but was added by the publisher (with or without Riley’s consent, this detail is not documented), and as such it is part of the Publication Expression although it is not part of the composer’s and the performers’ Self-Contained Expression (this shunting sound was no longer needed in subsequent releases on CD)

The overall content of the DVD entitled ‘The Aviator (2-Disc Full Screen Edition)’, released in 2004: Martin Scorsese’s movie itself; layout of the box and the two DVDs contained in the box; pictures on the DVDs themselves; English, Spanish, and French subtitles; English and French audio tracks; and bonuses: commentaries by director Martin Scorsese, editor Thelma Schoonmaker, and producer Michael Mann; a deleted scene (‘Howard Tells Ava About His Car Accident’); and featurettes ‘A Life Without Limits: The Making of The Aviator’; ‘The Role of Howard Hughes in Aviation History’; ‘Modern Marvels: Howard Hughes, A Documentary by the History Channel’; ‘The Visual Effects of The Aviator’; ‘The Affliction of Howard Hughes: Obsessive Compulsive Disorder’; ‘The Age of Glamour: The Hair And Makeup of The Aviator’; ‘Costuming The Aviator: The Work of Sandy Powell’; ‘Constructing The Aviator: The Work of Dante Ferretti’; ‘An evening with Leonardo DiCaprio and Alan Alda’; ‘OCD Panel Discussion With Leonardo DiCaprio, Martin Scorsese, and Howard Hughes’ Widow Terry Moore’; ‘Still Gallery’; ‘Scoring The Aviator: The Work Of Howard Shore’; and ‘The Wainwright Family – Loudon, Rufus and Martha’

### F27 Work Conception

[NB that this class does NOT correspond to LRM-R5 work creation, which is the completion of the creation (via a first expression) and not the beginning of the Work Conception]

Subclass of: [E65](#_E65_Creation_1) Creation

Scope note: This class comprises beginnings of evolutions of works.

An instance of F27 Work Conception marks the initiation of the creation of a work. The work, as an intellectual construction, evolves from this point on, until the last known expression of it. The instance of E39 Actor with which a work is associated through the chain of properties F1 Work *R16i was initiated by* F27 Work Conception *P14 carried out by* E39 Actor corresponds to the notion of the “creator” of the work. In the case of commissioned works, it is not the commissioning that is regarded as the work conception, but the acceptance of the commission.

This event does not always correlate with the date assigned in common library practice to the work, which is usually a later event (such as the date of completion of the first clean draft).

In addition, F27 Work Conception can serve to document the circumstances that surrounded the appearance of the original idea for a work, when these are known.

Examples: Ludwig van Beethoven’s having the first ideas for his fifth symphony

Pablo Picasso’s acceptance, in 1930, of Ambroise Vollard’s commission for a set of 100 etchings, now known as the ‘Vollard Suite’

René Goscinny’s and Albert Uderzo’s first collaborative ideas for the comic book entitled ‘Asterix in Britain’ [*comment: Goscinny wrote the script and Uderzo made the drawings; both are regarded as co-creators of that collaborative, at the same level of creative input, and no attempt is made to ascertain whether the ideas for the script preceded the ideas for the drawings, or vice-versa*]

The combination of activities, carried out, among others, by Alfred Hitchcock, that began the process which eventually resulted in the movie entitled ‘Psycho’ coming into being

Oscar Wilde’s having by May 1897 the initial idea of writing his poem entitled ‘The ballad of the Reading gaol’, inspired by his stay in the Reading prison from November 20, 1895 to May 18, 1897, and the execution of Charles Thomas Woolridge on July 7, 1896

Properties**:** [R16](#_R16_initiated_(was) initiated (was initiated by): [F1](#_F1_Work_1) Work

### F28 Expression Creation [=LRM-R6 Expr created by Agent]

[LRM-R5 Work creation = the creation of the first expression in FRBRoo. Add this to the scope note of F28]

[LRM-R24 expression derivation: F28 Expression creation. Used specific object (the expression derived from)]

Need a logical rule to restrict the two expressions to being expressions of the same work. And an inference that there is causality in the creation of the second expression. NB: Can make a derivative using more than 1 specific previous source. (translation, of the Quarto and Folio versions of Hamlet, But these are two distinct Expressions In the Hamlet example, the translations were distinct: they were published together, but as two distinct texts.]

[PLB: But the case does exist: in the modern edition of Guillaume de Machaut's works, the versions from 2 distinct manuscripts are edited as one version (which is sometimes performed as such, despite the harsh dissonances it results in!)]

[Critical editions often merge variant readings into one text]

Subclass of: [E12](#_E12_Production_) Production

[E65](#_E65_Creation_1) Creation

Superclass of: [F29](#_F29_Recording_Event) Recording Event

[F30](#_F30_Publication_Event) Publication Event

Scope note: This class comprises activities that result in instances of F2 Expression coming into existence. This class characterises the externalisation of an Individual Work. [F1 Work]

Although F2 Expression is an abstract entity, a conceptual object, the creation of an expression inevitably also affects the physical world: when you scribble the first draft of a poem on a sheet of paper, you produce an instance of F4 Manifestation Singleton; F28 Expression Creation is a subclass of E12 Production because the recording of the expression causes a physical modification of the carrying E18 Physical Thing. The work becomes manifest by being expressed on a physical carrier different from the creator’s brain. The spatio-temporal circumstances under which the expression is created are necessarily the same spatio-temporal circumstances under which the first instance of F4 Manifestation Singleton is produced. The mechanisms through which *oral tradition* (of myths, tales, music, etc.) operates are not further investigated in this model. As far as bibliographic practice is concerned, only those instances of F2 Expression that are externalised on physical carriers other than both the creator’s brain and the auditor’s brain are taken into account (for a discussion of the modelling of oral traditions, see: Nicolas, Yann. ‘Folklore Requirements for Bibliographic Records: oral traditions and FRBR.’ In: *Cataloging & Classification Quarterly* (2005). Vol. 39, No. 3-4. P. 179-195).

It is possible to use the *P2 has type (is type of)* property in order to specify that the creation of a given expression of a given work played a particular role with regard to the overall bibliographic history of that work (e.g., that it was the creation of the progenitor expression on which all other expressions of the same work are based; or that it was the creation of the critical edition that served as the basis for canonical references to the work).

Examples: The creation of the original manuscript score of ‘Uwertura tragiczna’ by Andrzej Panufnik in 1942 in Warsaw

The reconstruction from memory of the manuscript score of ‘Uwertura tragiczna’ by Andrzej Panufnik in 1945 after the original score was destroyed during the war

The creation, by Lord Byron, of the English text of his work entitled ‘Manfred’ (*P2 has type* E55 Type {major original contribution})

The creation, by Woldemar Starke, of his German translation of Lord Byron’s text entitled ‘Manfred’ (*P2 has type* E55 Type {translation})

The recording of the third alternate take of ‘Blue Hawaii’ performed by Elvis Presley in Hollywood, Calif., Radio Recorders, on March 22nd, 1961 [each individual take is a distinct instance of F2 Expression]

Properties**:** [R17](#_R17_created_(was) created (was created by): [F2](#_F2_Expression) Expression

[R18](#_R18_created_(was) created (was created by): [F4](#_F4_Manifestation_–_Singleton) Manifestation Singleton

[R19](#_R19_created_a) created a realisation of (was realised through): [F1](#_F1_Work_1) Work

### F30 Publication Event [=LRM-R7 manifestation creation]

[Need to distinguish publication from distribution (LRM-R9). FRBRoo does not presently have anything to cover distribution. The 3rd example (online distribution), belongs to the distribution action. The publication event is not the creation of the publication expression, it uses it.]

[PLB: Originally FRBRoo dealt with distribution as a Right granted to an Actor by the publisher. The event to be accounted for is the granting of the right to distribute rather than the distribution process itself]

[The distribution facts are of interest for obtaining items. This could fall under a general services model. Could identify the LRM-R9 with the setting of the distribution service.]

Need to get a copy of the service model from Parthenos project.

Subclass of: [F28](#_F31_Expression_Creation) Expression Creation

Scope note: This class comprises the activities of publishing. Such an event includes the creation of an F24 Publication Expression and setting up the means of production. The end of this event is regarded as the date of publication, regardless of whether the carrier production is started. Publishing can be either physical or electronic. Electronic publishing is regarded as making an instance of F24 Publication Expression available in electronic form on a public network. Electronic Publishing does not mean producing a physical instance of F5 Item by partially electronic means. Making an electronic file available on a physical carrier can be regarded as equivalent to setting up the means of production; downloading the file is regarded as the electronic equivalent of F32 Carrier Production Event.

Examples: Publishing Amerigo Vespucci’s ‘Mundus novus’ in Paris ca. 1503-1504

Establishing in 1972 the layout, features, and prototype for the publication of ‘The complete poems of Stephen Crane, edited with an introduction by Joseph Katz’ (ISBN ‘0-8014-9130-4’), which served for a second print run in 1978

Making available online the article by Allen Renear, Christopher Phillippe, Pat Lawton, and David Dubin, entitled ‘An XML document corresponds to which FRBR Group 1 entity?’ <<http://conferences.idealliance.org/extreme/html/2003/Lawton01/EML2003Lawton01.html>>

Properties**:** [R23](#_R23_created_a) created a realisation of (was realised through): [F19](#_F19_Publication_Work) Publication Work [not right]

[R24](#_R24_created_(was) created (was created through): [F24](#_F24_Publication_Expression) Publication Expression [not right]

[R66](#_R66_included_performed) included performed version of (had a performed version through): [E89](#_E1_CRM_Entity) Propositional Object

### F32 Carrier Production Event [= LRM-R8 manufactured]

Subclass of: [E12](#_E12_Production_) Production

Scope note: This class comprises activities that result in instances of F54 Utilised Information Carrier coming into existence. Both the production of a series of physical objects (printed books, scores, CDs, DVDs, CD-ROMS, etc.) and the creation of a new copy of a file on an electronic carrier are regarded as instances of F32 Carrier Production Event.

Typically, the production of copies of a publication (no matter whether it is a book, a sound recording, a DVD, a cartographic resource, etc.) strives to produce items all as similar as possible to a prototype that displays all the features that all the copies of the publication should also display, which is reflected in property *R27 used as source material* F24 Publication Expression.

Examples: The printing of copies of the 3rd edition of ‘Codex Manesse: die Miniaturen der großen Heidelberger Liederhandschrift, herausgegeben und erläutert von Ingo F. Walther unter Mitarbeit von Gisela Siebert’, Insel-Verlag, 1988 [a fac-simile edition of an illuminated mediaeval manuscript]

The printing of copies of the ‘Ordnance Survey Explorer Map 213, Aberystwyth & Cwm Rheidol’, ISBN 0-319-23640-4 (folded), 1:25,000 scale, released in May 2005 [a cartographic resource]

The production of copies of the sound recording titled ‘The Glory (????) of the human voice’, RCA Victor Gold Seal GD61175, containing recordings of musical works performed by Florence Foster Jenkins [a sound recording; the question marks in parentheses belong to the original title]

My clicking now on the link <<http://cidoc.ics.forth.gr/docs/cidoc_crm_version_4.0.pdf>>, and thus downloading on my PC a reproduction of the electronic file titled ‘Definition of the CIDOC Conceptual Reference Model… version 4.0’ that is stored on the ICS FORTH’s servers in Heraklion, Crete

The second print run, in 1978, of ‘The complete poems of Stephen Crane, edited with an introduction by Joseph Katz’ (ISBN ‘0-8014-9130-4’), a publication dated 1972 [publication of a printed text]

Properties**:** [R26](#_R26_produced_things) produced things of type (was produced by): [F3](#_F3_Manifestation_Product) Manifestation Product Type

[R27](#_R27_used_as) used as source material (was used by): [F24](#_F24_Publication_Expression) Publication Expression [revise R27 and R26 as both will have the publication expression/manifestation product type as their range]

[R28](#_R28_produced_(was) produced (was produced by): [F54](#_F54_Utilized_Information) Utilised Information Carrier

### F33 Reproduction Event [relate here LRM-R27 and LRM-R28]

[Make 3 distinctions: reproduction of a specific, identified item, b) reproduction likely based on an item but without identifying it (considering it an ideal representative item) c) reproduction via reuse with very small modifications of the Publication Expression]

Subclass of: [E12](#_E12_Production_) Production

Scope note: This class comprises activities that consist in making copies, more or less mechanically, of an instance of E84 Information Carrier (such as an F5 Item or an F4 Manifestation Singleton which is also instance of E84 Information Carrier), preserving the expression carried by it. A Reproduction Event results in new instances of E84 Information Carrier coming into existence. In general, the copy will have different attributes from the original and they are therefore not regarded as siblings.

This class makes it possible to account for the legal distinction between private copying for the purpose of “fair use,” and mass production for the purpose of dissemination.

It can prove difficult to determine where to draw the line between F33 Reproduction Event and F32 Carrier Production Event in cases where multiple copies are produced. In this case, the copies, but not the original, may be regarded as instances of F5 Item. It is the existence of an explicit production plan that makes the difference. As a consequence, F33 Reproduction Event and F32 Carrier Production Event are not declared as *disjoint,* which makes it possible to account for such situations that could be regarded as instances of both Production Event and Reproduction Event.

Examples: My photocopying now for my own private use an exemplar of the article entitled ‘Federal Court’s Ruling Against Photocopying Chain Will Not Destroy “Fair Use”’ by Kenneth D. Crews, issued in ‘Chronicle of higher education’, 17 April 1991, A48

The BnF’s producing in 1997 the microfilm identified by call number ‘Microfilm M-12169’ of the exemplar identified by shelf mark ‘Res 8 P 10’ of Amerigo Vespucci’s ‘Mundus novus’ published in Paris ca. 1503-1504

The BnF’s reproducing in 2001 the exemplar identified by call number ‘NC His Master’s Voice HC 20’ of a 78 rpm phonogram released by Gramophone in 1932, as part of the CD identified by call number ‘SDCR 2120’

The BnF’s making in 2003 a digitisation, identified by call number ‘IFN 7701015’, of the collection of drawings (held by the BnF) that were made by Étienne-Louis Boullée in 1784 for his project of a ‘Newton Cenotaph’

Properties**:** [R29](#_R29_reproduced_(was) reproduced (was reproduced by): [E84](#_E84_Information_Carrier_) Information Carrier

[R30](#_R30_produced_(was) produced (was produced by): [E84](#_E84_Information_Carrier_) Information Carrier

### F35 Nomen Use Statement [=LRM-R14 Agent assigns Nomen, and this is the evidence of the explicit assignment]

Subclass of: [F2](#_F2_Expression) Expression

[E29](#_E29_Design_or_) Design or Procedure

Scope note: This class comprises statements relating a Thema with a particular Nomen and its usage in the context of a common Complex Work realized by one or more KOS.

[LRM-E9 Nomen could be seen to match F35, with a broadened scope note, ie, not just in a KOS, but in any contextual domain.]

Examples: ‘010 **\_\_** |a sh 85082387’…‘150 \_\_**|a** Maxwell equations’ [MARC 21 encoding of the preferred subject access point from LCSH, <http://lccn.loc.gov/sh85082387>, as of 19 November 2012]

‘010 **\_\_** |a sh 85082387’…‘450 \_\_ |aEquations, Maxwell’ [MARC 21 encoding of a variant subject access point, from the same source]

‘PTBNP|20891’…‘200 1‎‡a Whitman,‏ ‎‡b Walt,‏ ‎‡f 1819-1892‏’ [UNIMARC encoding of the preferred access point for a personal name, from the authority file of the National Library of Portugal, as found on VIAF, <http://www.viaf.org/processed/PTBNP%7C20891>, on 28 September 2015]

‘001  FRBNF119547493’…‘100  w.0..barus.$aGončarova$mNatalʹâ Sergeevna$d1881-1962’ [INTERMARC encoding of the preferred access point for a personal name, from the authority file of the National Library of France, [http://catalogue.bnf.fr/ark:/12148/cb119547494/ INTERMARC](http://catalogue.bnf.fr/ark:/12148/cb119547494/INTERMARC), as of 15 June 2012]

‘001  FRBNF119547493’…‘100  w.0..c.rus.$aГончарова$mНаталья Сергеевна$d1881-1962’ [INTERMARC encoding of a parallel access point from the same source]

‘001  FRBNF119547493’…‘400  $w....b.eng.$aGoncharova$mNatalia$d1881-1962’ [INTERMARC encoding of a variant access point from the same source]

‘<eac-cpf […]> <control> <recordId>beinecke.7h44jbj</recordId> […] </control>’ … ‘<cpfDescription> <identity> <entityType>family</entityType> <nameEntry xml:lang="eng" scriptCode="Latn"><part localType="100a">Boswell family</part> […] </nameEntry> […] </identity> </cpfDescription> […] </eac-cpf>’ [EAC encoding of the preferred access point for a family]

Properties**:** [R32](#_R32_is_warranted) is warranted by (warrants): [F52](#_F52_Name_Use_Activity) Name Use Activity

[R35](#_R35_is_specified) is specified by (specifies): [F34](#_F34_KOS) KOS

(R35.1 has status: [E55](#_E55_Type_) Type)

[R36](#_R36_uses_script) uses script conversion (is script conversion used in): [F36](#_F36_Script_Conversion) Script Conversion

[R37](#_R37_states_as) states as nomen (is stated as nomen in): [F12](#_F12_Nomen) Nomen

[R38](#_R38_refers_to_thema_(is_thema_of)) refers to thema (is thema of): [E1](#_E1_CRM_Entity_) CRM Entity

[R39](#_R39_is_intended) is intended for (is target audience in): [E74](#_E74_Group_) Group

[R54](#_R54_has_nomen) has nomen language (is language of nomen in): [E56](#_E56_Language_1) Language

[R55](#_R55_has_nomen) has nomen form (is nomen form in): [E55](#_E55_Type_) Type

[R56](#_R56_has_related) has related use (is related use for): [F35](#_F35_Nomen_Use_Statement) Nomen Use Statement

(R56.1 has type: [E55](#_E55_Type_) Type)

### F50 Controlled Access Point

[Delete this class, in LRM these are just Nomens. Transfer examples to either F12 or E42]

Subclass of: [F13](#_F14_Identifier) Identifier

Scope note: This class comprises identifiers that are not only designed to be unique for the thing they identify, but also to ensure, by following adequate rules based on widely known and accepted properties for their generation, that an independent agency using the same rule would create the same identifier for the same thing.

F50 Controlled Access Point covers the notion of both “preferred” and “variant” forms. It does not cover the notion of “cross references”. A cross reference may not uniquely identify one entity, but can be shared by two or more entities, regardless of whether it displays the same structural characteristics as preferred controlled access points.

Examples: ‘Maxwell equations’ [preferred subject access point from LCSH, <http://lccn.loc.gov/sh85082387>, as of 19 November 2012]

‘Equations, Maxwell’ [variant subject access point, from the same source]

‘Gončarova, Natalʹâ Sergeevna (1881-1962)’ [preferred access point for a personal name, from the authority file of the National Library of France, <http://catalogue.bnf.fr/ark:/12148/cb119547494/PUBLIC>, as of 15 June 2012]

‘Гончарова, Наталья Сергеевна (1881-1962)’ [parallel access point from the same source]

‘Goncharova, Natalia (1881-1962)’ [variant access point from the same source]

### F52 Name Use Activity [ related to LRM-R14 Agent assigned Nomen]

Subclass of: [E13](#_E18_Physical_Thing_) Attribute Assignment [PLB: I'm wondering if we were right to declare F52 as a subclass of E13 Attribute Assignment, To be discussed! As the nomen is not an attribute. The Assignment happens once, using the assigned attribute is continuous. The LRM-R14 assignment is the beginning of the time period for the name use activity]

Scope note: This class comprises periods of continuous use of a specific instance of E41 Appellation for a particular instance of E1 CRM Entity by an E39 Actor. It includes in particular the use of the name by its carrier. Characteristically, actors performing an activity may choose a particular appellation for themselves in the context of this activity. Such cases should be modelled by additionally classifying these activities as instances of F52 Name Use Activity.

It is possible to specify the type of name use, through the *P2 has type* property, e.g.: use of a pseudonym, use of a married name, use of a birth name, use of a blended name, use of a religious name, etc.

Examples: Using the pseudonym ‘Prince’ until 1993, and again from 2000 on

Using the pseudonym ‘Love Symbol’ from 1993 to 2000

Using the pseudonym ‘Lewis Carroll’ when authoring works of fiction (*P2 has type* E55 Type {use of a pseudonym})

Using the name ‘Charles Dodgson’ when authoring works of mathematics and logics (*P2 has type* E55 Type {use of a birth name})

Using the name ‘Mother Teresa’ instead of ‘Agnes Gonxha Bojaxhiu’ when becoming head of the Missionaries of Charity (*P2 has type* E55 Type {use of a religious name})

Using the name ‘Elizabeth Barrett Browning’ instead of ‘Elizabeth Barrett Barrett’ after marrying Robert Browning (*P2 has type* E55 Type {use of a married name})

Using the name ‘Antonio Villaraigosa’ instead of ‘Antonio Villar’ after marrying Corina Raigosa (*P2 has type* E55 Type {use of a blended name}) [*comment:* when former mayor of Los Angeles Antonio Villar and Corina Raigosa got married in 1987, the two spouses decided they would merge their two last names into one]

Properties**:** [R61](#_R61_occurred_in) occurred in kind of context (was kind of context for): [E55](#_E55_Type_) Type

[R62](#_R62_was_used) was used for membership in (was context for): [E74](#_E74_Group_) Group

[R63](#_R63_named_(was) named (was named by): [E1](#_E1_CRM_Entity_) CRM Entity

[R64](#_R64_used_name) used name (was name used by): [E41](#_E41_Appellation_3) Appellation

### F54 Utilised Information Carrier

Subclass of: [E84](#_E84_Information_Carrier_) Information Carrier

Superclass of: [F53](#_F53_Material_Copy) Material Copy

[F5](#_F5_Item_1) Item

[Use of the Storage Unit class to also express the situation when the Item is “smaller” than the physical object, as in multiple digital files on a single medium. It's also the "bound with" situation]

Scope note: This class comprises physical objects that carry one or more instances of F24 Publication Expression.

Examples: The physical features created on my PC’s hard drive when I clicked on the link <<http://cidoc.ics.forth.gr/docs/cidoc_crm_version_4.0.pdf>>, and thus downloaded a reproduction of the electronic file titled ‘Definition of the CIDOC Conceptual Reference Model… version 4.0’ that is stored on the ICS FORTH’s servers in Heraklion, Crete (F53)

Any copy of the modern reprint publication of Marin Mersenne’s ‘Harmonie universelle’, Paris, 1986, ISBN ‘2-222-00835-2’ (F5)

Properties: [R6](#_R6_carries_(is) carries (is carried by): F24 Publication Expression

## Properties

### R1 is logical successor of (has successor) [=LRM-R19]

Domain: [F1](#_F1_Work_1) Work

Range: [F1](#_F1_Work_1) Work

Subproperty of: [E70](#_E70_Thing_1) Thing. [P130](#_P130__shows_) shows features of (features are also found on): [E70](#_E70_Thing_1) Thing

Quantification: (0,n:0,n)

Scope note: This property associates an instance of F1 Work which logically continues the content of another instance of F1 Work with the latter.

Examples: Albrecht Dürer’s woodcut from ‘The Large Woodcut Passion’ entitled ‘The Agony in the Garden’ (F1, conceived ca 1496-98) *R1 is logical successor of* Albrecht Dürer’s woodcut from ‘The Large Woodcut Passion’ entitled ‘The Last Supper’ (F1, dated 1510)

The first ‘Star wars’ trilogy (F15, 1977-1983) *R1 is logical successor of* The second ‘Star wars’ trilogy (F15, 1999-2005) *[Note that the* logical *order does not follow, in either of these two examples, the* chronological *order]*

### R2 is derivative of (has derivative) [=LRM-R22 Work transformation]

Domain: [F1](#_F1_Work_1) Work

Range: [F1](#_F1_Work_1) Work

Subproperty of: [E70](#_E70_Thing_1) Thing. [P130](#_P130__shows_) shows features of (features are also found on): [E70](#_E70_Thing_1) Thing

Quantification: (0,n:0,n)

Scope note: This property associates an instance of F1 Work which modifies the content of another instance of F1 Work with the latter. The property *R2.1 has type* of this property allows for specifying the kind of derivation, such as adaptation, summarisation etc.

Examples: William Schuman’s orchestration of Charles Ives’s ‘Variations on America’ (F15) *R2 is derivative of* Charles Ives’s ‘Variations on America’ (F15) *R2.1 has type* orchestration (E55)

Charles Ives’s musical work entitled ‘Variations on America’ (F15) *R2 is derivative of* the musical work titled ‘America’ (F15) *R2.1 has type* variations (E55)

The musical work entitled ‘America’ (F15) *R2 is derivative of* the musical work entitled ‘God save the King’ (F15) *R2.1 has type* same tune with different lyrics (E55)

Properties:R2.1 has type: [E55](#_E55_Type_) Type

### R3 is realised in (realises) [=LRM-R4]

Domain: [F1](#_F1_Work_1) Work

Range: [F22](#_F22_Self-Contained_Expression) Self-contained Expression [adjust to F2]

Superproperty of: [F14](#_F16_Rules) Individual Work. [R9](#_R9_is_realised) is realised in (realises): [F22](#_F22_Self-Contained_Expression) Self-Contained Expression [deleted]

[F20](#_F20_Performance_Work) Performance Work. [R12](#_R12_is_realised_1) is realised in (realises): [F25](#_F25_Performance_Plan) Performance Plan

[F21](#_F21_Recording_Work) Recording Work. [R13](#_R13_is_realised_1) is realised in (realises): [F26](#_F26_Recording) Recording

[F1](#_F1_Work_1) Work. [R40](#_R40_has_representative_expression_() has representative expression (is representative expression for): [F22](#_F22_Self-Contained_Expression) Self-Contained Expression

Subproperty of: [E70](#_E70_Thing_1) Thing. [P130](#_P130__shows_) shows features of (features are also found on): [E70](#_E70_Thing_1) Thing

Quantification: (0,n:1,1)

Scope note: This property associates an instance of F22 Self-Contained Expression with an instance of F1 Work.

This property expresses the association that exists between an expression (F22) and the work that this expression conveys. The semantics of the association will be different depending on what specific subtype of F1 Work the work is an instance of. If the work is an instance of F14 Individual Work, the F22 Self-Contained Expression completely conveys the individual work. If the work is an instance of F15 Complex Work, the F22 Self-Contained Expression conveys an alternative member of the complex work.

Our factual knowledge of how a given work is realised into an expression is often limited and this property makes it possible to express the association between instances of F22 Self-Contained Expression and the work it conveys without using the more developed paths.

The property *R3.1 has type:* E55 Type allows for specifying the role played by the referred to expression in the overall bibliographic history of the work (e.g., ‘progenitor expression’, on which all other expressions of the same work are based; ‘reference for canonical citations’, in the sense of the HuCit ontology developed by Matteo Romanello and Michele Pasin; ‘earliest draft’, ‘intermediate draft’, ‘final clean draft’, ‘princeps edition’, etc.).

Examples: Dante’s work entitled ‘Inferno’ (F15) *R3 is realised in* the Italian text of Dante’s ‘Inferno’ as found in the authoritative critical edition *La Commedia secondo l’antica vulgata a cura di Giorgio Petrocchi*, Milano: Mondadori, 1966-67 (= Le Opere di Dante Alighieri, Edizione Nazionale a cura della Società Dantesca Italiana, VII, 1-4) (F22) *R3.1 has type* authoritative critical edition (E55)

Mozart’s work entitled ‘Il dissoluto punito ossia il Don Giovanni’ (F15) *R3 is realised in* the notated music of the Prague version, as found on manuscript Ms 1548 of the National Library of France (F22) *R3.1 has type* autograph version (E55)

Properties: R3.1 has type: [E55](#_E55_Type_) Type

### R4 carriers provided by (comprises carriers of)

Domain: [F2](#_F2_Expression) Expression

Range: [F3](#_F3_Manifestation_Product_Type) Manifestation Product Type [revise based on how F3/F24 are worked out. In CRMbase, P165: PLB I'd prefer to use the "is incorporated in" Publication Expression/Manifestation structure. Might deprecate R4]

Superproperty of: [F2](#_F2_Expression) Expression. [R41](#_R41_has_representative_manifestatio) has representative manifestation product type (is representative manifestation product type for): [F3](#_F3_Manifestation_Product) Manifestation Product Type

Subproperty of: [E73](#_E73_Information_Object_) Information Object. [P128](#_P128_carries_(is_1) is carried by: [E24](#_E24_Physical_Man-Made_1) Physical Man-Made Thing. [P2](#_P2_has_type_) has type: [E55](#_E55_Type_) Type

Quantification: (1,n:0,n)

Scope note: This property associates a publication, i.e. an instance of F3 Manifestation Product Type, with an instance of F2 Expression, which all exemplars of that publication should carry, as long as they are recognised as complete exemplars of that publication. Typically, this property is observed on one exemplar of a publication, and extrapolated to all other exemplars of the same publication.

This property is a shortcut of: F2 Expression *P165i is incorporated in* F24 Publication Expression *CLR6i should be carried by* F3 Manifestation Product Type.

Examples: The text of Marin Mersenne’s ‘Harmonie universelle’ (F22) *R4 carriers provided by* publication identified by ISBN ‘2-222-00835-2’ (F3)

A recording of the Atrium Musicæ Ensemble’s performance of a fragment of Euripides’ textual and musical work entitled ‘Orestes’ (F26) *R4 carriers provided by* the CD entitled ‘Musique de la Grèce antique = Ancient Greek music = Griechische Musik der Antike’, released in 2000 and identified by UPC/EAN ‘794881601622’ (F3)

### R7 is example of (has example) [=LRM-R4]

Domain: [F5](#_F5_Item_1) Item

Range: [F3](#_F3_Manifestation_Product) Manifestation Product Type

Subproperty of: [E1](#_E1_CRM_Entity_) CRM Entity. [P2](#_P2_has_type_) has type (is type of): [E55](#_E55_Type_) Type

Quantification: (1,1:0,n)

Scope note: This property associates a publication with one of its exemplars.

It is a shortcut of the more developed path: F5 Item *R28i was produced by* F32 Carrier Production *R26 produced things of type (was produced by):* F3 Manifestation Product Type.

Examples: The item held by the National Library of France and identified by shelf mark ‘Res 8 P 10’ (F5) *R7 is example of* the edition of Amerigo Vespucci’s textual and cartographic work entitled ‘Mundus novus’ issued in Paris ca. 1503-1504 (F3)

### R8 consists of (forms part of)

[Not needed, E42 Identifier is retained, related to E90]

Domain: [F13](#_F13_Identifier) Identifier

Range: [E90](#_E90_Symbolic_Object) Symbolic Object

Subproperty of: [E90](#_E90_Symbolic_Object) Symbolic Object. [P106](#_P106_is_composed_) is composed of (forms part of): [E90](#_E90_Symbolic_Object_1) Symbolic Object

Quantification: (0,n:0,n)

Scope note: This property associates an instance of F13 Identifier with one of the non-syntactic instances of E90 Symbolic Object which form part of it.

Examples: Controlled access point ‘The Adoration of the Shepherds (Coventry)’ (F50) *R8 consists of* ‘The Adoration of the Shepherds’ (E35), and *R8 consists of* ‘Coventry’ (E48)

Controlled access point ‘Rite of spring (Choreographic Work : Bausch)’ (F50) *R8 consists of* ‘Rite of spring’ (E35), *R8 consists of* ‘Choreographic Work’ (F12), and *R8 consists of* ‘Bausch’ (F12)

Controlled access point ‘King Kong (1933)’ (F50) *R8 consists of* ‘King Kong’ (E35), and *R8 consists of* ‘1933’ (E50)

Controlled access point ‘Guillaume, de Machaut, ca. 1300-1377’ (F50) *R8 consists of* ‘Guillaume, de Machaut’ (F12), and *R8 consists of* ‘ca. 1300-1377’ (E90)

Controlled access point ‘Univerza v Ljubljani. Oddelek za bibliotekarstvo’ (F50) *R8 consists of* ‘Univerza v Ljubljani’ (F12), and *R8 consists of* ‘Oddelek za bibliotekarstvo’ (F12)

ISBN ‘978-002-002-0’ (F13) *R8 consists of* ‘978’ (E90) indicating the Nigerian ISBN Agency, *R8 consists of* ‘002’ (E90) indicating the Nigerian Institute of International Affairs, *R8 consists of* ‘002’ (E90) used for the publication entitled ‘Nigeria’s international economic relations’, and *R8 consists of* ‘0’ (E90)

### R15 has fragment (is fragment of)

Domain: [F2](#_F2_Expression) Expression

Range: [F23](#_F23_Expression_Fragment) Expression Fragment [or should have range E90 directly, then do not need F23]

Subproperty of: [E90](#_E90_Symbolic_Object_1) Symbolic Object. [P106](#_P106_is_composed_) is composed of (forms part of): [E90](#_E90_Symbolic_Object_1) Symbolic Object

Quantification: (0,n:0,n)

Scope note: This property associates the fragment of an expression and the expression of which it is a fragment.

Examples: The ancient Greek text of the four stanzas from an ode by Sappho that were quoted by Pseudo-Longinus in his textual work entitled ‘On the sublime’ (F23) *R15 is fragment of* the complete ancient Greek text, now irremediably lost, of Sappho’s ode currently identified as Sappho’s poem #2 (F22)

The statement ‘fasc. 111’ (abridgement for ‘fascicle no. 111’) indicating the sequential position of the publication identified by ISBN ‘2-7018-0037-4’ within the series entitled ‘Bibliothèque des Écoles françaises d’Athènes et de Rome’ and identified by ISSN ‘0257-4101’ (F23) *R15 is fragment of* the overall content of the publication identified by ISBN ‘2-7018-0037-4’ (F24)

### R26 produced things of type (was produced by)

Domain: [F32](#_F32_Carrier_Production) Carrier Production Event

Range: [F3](#_F3_Manifestation_Product) Manifestation Product Type

Subproperty of: [E12](#_E12_Production_) Production. [P108](#_P108_produced_(was_1) has produced: [E24](#_E24_Physical_Man-Made_1) Physical Man-MadeThing. [P2](#_P2_has_type_) has type: [E55](#_E55_Type_) Type

[Use new CRM P186 instead of P108]

Quantification: (1,n:0,n)

Scope note: This property associates an instance of F32 Carrier Production Event with the instance of F3 Manifestation Product Type it produced items of.

Examples: The production of copies of the publication entitled ‘Codex Manesse: die Miniaturen der großen Heidelberger Liederhandschrift, herausgegeben und erläutert von Ingo F. Walther unter Mitarbeit von Gisela Siebert’, 3rd edition, Insel-Verlag, 1988 (F32) *R26 produced things of type* the publication identified as ‘Codex Manesse: die Miniaturen der großen Heidelberger Liederhandschrift, herausgegeben und erläutert von Ingo F. Walther unter Mitarbeit von Gisela Siebert’, 3rd edition, Insel-Verlag, 1988 (F3)

The production of copies of the publication entitled ‘Ordnance Survey Explorer Map 213, Aberystwyth & Cwm Rheidol’, ISBN ‘0-319-23640-4’ (folded), 1:25,000 scale, released in May 2005 (F32) *R26 produced things of type* the publication identified by ISBN ‘0-319-23640-4’ (F3)

The production of copies of the sound recording entitled ‘The Glory (????) of the human voice’, RCA Victor Gold Seal GD61175, containing recordings of musical works performed by Florence Foster Jenkins (F32) *R26 produced things of type* the publication entitled ‘The Glory (????) of the human voice’ and identified by the label and label number ‘RCA Victor Gold Seal GD61175’ (F3)

The production of a second print run, in 1978, of the publication titled ‘The complete poems of Stephen Crane, edited with an introduction by Joseph Katz’ (identified by ISBN ‘0-8014-9130-4’) (F32) *R26 produced things of type* the publication, dated 1972, entitled ‘The complete poems of Stephen Crane, edited with an introduction by Joseph Katz’ (identified by ISBN ‘0-8014-9130-4’) (F3)

### R33 has content

Domain: [F12](#_F13_Name) Nomen

Range: [E62](#_E62_String) String

Subproperty of: [E1](#_E1_CRM_Entity_) CRM Entity. [P3](#_P3_has_note) has note: [E62](#_E62_String) String

Quantification: (1,n:0,n)

Scope note: This property associates an instance of F12 Nomen with one or more equivalent serialized content models for it. In digital form the symbol arrangement constituting an instance of F12 Nomen can only be represented through a particular encoding, for example ASCII or Latin1 for the Latin script. We call such a representation a content model. The property *R33.1 has encoding:* E55 Type allows for specifying the encoding of a particular associated content model. Together with this specification, a content model allows for unambiguously defining a nomen independently from the encoding used for representing the content.

Examples: The term ‘earth’ encoded as ASCII (F12) *R33* *has content* ‘0x65 0x61 0x72 0x74 0x68’ (E62) *R33.1* *has encoding* ASCII (E55)

The term ‘earth’ encoded as UNICODE UTF16 (F12) *R33* *has content* ‘0x0065 0x0061 0x0072 0x0074 0x0068’ *R33.1* *has encoding* UNICODE UTF16 (E55)

The term ‘earth’ in Latin Arial font (F12) *R33* *has content* ‘’ (E62) *R33.1* *has encoding* printed Latin Arial (E55) [should this example say: The term ‘earth’ in printed Latin script (F12) *R33 has content* …. Specifying size? Question: is the in CRMbase? Should it be? E90 referring to P3].

Properties: R33.1 has encoding: [E55](#_E55_Type_) Type [R33.1 (in its current form) has to be replaced by a property with domain E90. The E90 has identity relative to/is defined based on (symbol set)]

## Referred to CIDOC CRM classes.

### E15 Identifier Assignment [= LRM-R14 Agent assigns Nomen]

Subclass of: [E13](#_E18_Physical_Thing_) Attribute Assignment

Scope note: This class comprises activities that result in the allocation of an identifier to an instance of E1 CRM Entity. An E15 Identifier Assignment may include the creation of the identifier from multiple constituents, which themselves may be instances of E41 Appellation. The syntax and kinds of constituents to be used may be declared in a rule constituting an instance of E29 Design or Procedure.

Examples of such identifiers include Find Numbers, Inventory Numbers, uniform titles in the sense of librarianship and Digital Object Identifiers (DOI). Documenting the act of identifier assignment and deassignment is especially useful when objects change custody or the identification system of an organization is changed. In order to keep track of the identity of things in such cases, it is important to document by whom, when and for what purpose an identifier is assigned to an item.

The fact that an identifier is a preferred one for an organisation can be expressed by using the property *E1 CRM Entity. P48 has preferred identifier (is preferred identifier of): E42 Identifier*. It can better be expressed in a context independent form by assigning a suitable E55 Type, such as “preferred identifier assignment”, to the respective instance of E15 Identifier Assignment via the *P2 has type* property.

Examples:

* + - Replacement of the inventory number TA959a by GE34604 for a 17th century lament cloth at the Museum Benaki, Athens
    - Assigning the author-uniform title heading “Goethe, Johann Wolfgang von, 1749-1832. Faust. 1. Theil.” for a work (E28)
    - On June 1, 2001 assigning the personal name heading “Guillaume, de Machaut, ca. 1300-1377” (E42,E82) to Guillaume de Machaut (E21)

Properties:

[**P37**](#_P37_assigned_(was) **assigned (was assigned by):** [**E42**](#_E42_Identifier_1) **Identifier**

P38 deassigned (was deassigned by): E42 Identifier

[**P142**](#_P142_used_constituent) **used constituent (was used in):** [**E90**](#_E90_Symbolic_Object_1) **Symbolic Object**

### E36 Visual Item

Subclass of: [E73](#_E73_Information_Object_) Information Object

Superclass of: [E37](#_E37_Mark) Mark

E38 Image

Scope Note: This class comprises the intellectual or conceptual aspects of recognisable marks and images.

This class does not intend to describe the idiosyncratic characteristics of an individual physical embodiment of a visual item, but the underlying prototype. For example, a mark such as the ICOM logo is generally considered to be the same logo when used on any number of publications. The size, orientation and colour may change, but the logo remains uniquely identifiable. The same is true of images that are reproduced many times. This means that visual items are independent of their physical support.

The class E36 Visual Item provides a means of identifying and linking together instances of E24 Physical Man-Made Thing that carry the same visual symbols, marks or images etc. The property *P62 depicts (is depicted by)* between E24 Physical Man-Made Thing and depicted subjects (E1 CRM Entity) can be regarded as a shortcut of the more fully developed path from E24 Physical Man-Made Thing through *P65 shows visual item (is shown by)*, E36 Visual Item, *P138 represents (has representation)* to E1CRM Entity, which in addition captures the optical features of the depiction.

Examples:

* the visual appearance of Monet’s “La Pie” (E38)
* the Coca-Cola logo (E34)
* the Chi-Rho (E37)
* the communist red star (E37)

Properties:

[**P138**](#_P138_represents_(has) **represents (has representation):** [**E1**](#_E1_CRM_Entity_) **CRM Entity**

**(P138.1 mode of representation:** [**E55**](#_E55_Type_) **Type)**

### E39 Actor [=LRM-E6 Agent]

Subclass of: [E77](#_E77_Persistent_Item_1) Persistent Item

Superclass of: [E21](#_E21_Person_1) Person

[E74](#_E74_Group_) Group

Scope note: This class comprises people, either individually or in groups, who have the potential to perform intentional actions for which they can be held responsible.

The CRM does not attempt to model the inadvertent actions of such actors. Individual people should be documented as instances of E21 Person, whereas groups should be documented as instances of either E74 Group or its subclass E40 Legal Body.

Examples:

* London and Continental Railways (E40)
* the Governor of the Bank of England in 1975 (E21)
* Sir Ian McKellan (E21)

Properties:

[**P74**](#_P74_has_current) **has current or former residence (is current or former residence of):** [**E53**](#_E53_Place_) **Place**

[**P75**](#_P75_possesses_(is) **possesses (is possessed by):** [**E30**](#_E30_Right_1) **Right**

**P76 has contact point (provides access to): E51 Contact Point**

[**P131**](#_P131_is_identified) **is identified by (identifies):** [**E82**](#_E82_Actor_Appellation) **Actor Appellation**

### E41 Appellation[ =LRM-E9-A1 nomen string]

Subclass of: [E90](#_E90_Symbolic_Object_1) Symbolic Object

Superclass of: [E35](#_E35_Title) Title

[E42](#_E42_Identifier_1) Identifier

[E44](#_E44_Place_Appellation) Place Appellation (deprecated)

[E49](#_E49_Time_Appellation) Time Appellation (deprecated)

E51 Contact Point

E75 Conceptual Object Appellation

[E82](#_E82_Actor_Appellation) Actor Appellation (deprecated)

Scope note: This class comprises signs, either meaningful or not, or arrangements of signs following a specific syntax, that are used or can be used to refer to and identify a specific instance of some class within a certain context.

Instances of E41 Appellation do not identify things by their meaning, even if they happen to have one, but by convention, tradition, or agreement. Instances of E41 Appellation are cultural constructs; as such, they have a context, a history, and a use in time and space by some group of users. A given instance of E41 Appellation can have alternative forms, i.e., other instances of E41 Appellation that are always regarded as equivalent independent from the thing it denotes.

Specific subclasses of E41 Appellation should be used when instances of E41 Appellation of a characteristic form are used for particular objects. Instances of E49 Time Appellation, for example, which take the form of instances of E50 Date, can be easily recognised.

E41 Appellation should not be confused with the act of naming something. *Cf.* E15 Identifier Assignment

Examples:

* “Martin”
* “the Forth Bridge”
* “the Merchant of Venice” (E35)
* “*Spigelia marilandica* (L.) L.” [not the species, just the *name*]
* “information science” [not the science itself, but the name through which we refer to it in an English-speaking context]
* “安” [Chinese “an”, meaning “peace”]

Properties:

P139 has alternative form: E41 Appellation

P139.1 has type: E55 Type

### E73 Information Object

Subclass of: [E89](#_E1_CRM_Entity) Propositional Object

[E90](#_E90_Symbolic_Object_1) Symbolic Object

Superclass of: [E29](#_E29_Design_or_) Design or Procedure

[E31](#_E31_Document) Document

[E33](#_E33_Linguistic_Object) Linguistic Object

[E36](#_E36_Visual_Item) Visual Item

Scope note: This class comprises identifiable immaterial items, such as a poems, jokes, data sets, images, texts, multimedia objects, procedural prescriptions, computer program code, algorithm or mathematical formulae, that have an objectively recognizable structure and are documented as single units.

An E73 Information Object does not depend on a specific physical carrier, which can include human memory, and it can exist on one or more carriers simultaneously.

Instances of E73 Information Object of a linguistic nature should be declared as instances of the E33 Linguistic Object subclass. Instances of E73 Information Object of a documentary nature should be declared as instances of the E31 Document subclass. Conceptual items such as types and classes are not instances of E73 Information Object, nor are ideas without a reproducible expression.

Examples:

* image BM000038850.JPG from the Clayton Herbarium in London
* E. A. Poe’s “The Raven”
* the movie “The Seven Samurai” by Akira Kurosawa
* the Maxwell Equations

Properties: P165 incorporates (is incorporated in): E90 Symbolic Object

### E74 Group [= LRM-E8 Collective Agent!]

[However, the first 4 examples under E74 Group are NOT recognized as valid LRM-E8 Collective Agents, as they are not seen as having a sufficient level of responsibility.

Define an FRBRoo entity for LRM-E8 Collective Agent, with the LRM definition and examples, but declare the equivalence with E74]

[Decide on whether to retain F11 Corporate body as a subclass, as it is smaller than LRM-E8—do not follow the path documented in April 2017 of just renaming F11 to Collective Agent]

Subclass of: [E39](#_E39_Actor_) Actor

Superclass of: [E40](#_E41_Appellation_) Legal Body

Scope note: This class comprises any gatherings or organizations of two or more people that act collectively or in a similar way due to any form of unifying relationship. In the wider sense this class also comprises official positions which used to be regarded in certain contexts as one actor, independent of the current holder of the office, such as the president of a country.

A gathering of people becomes an E74 Group when it exhibits organizational characteristics usually typified by a set of ideas or beliefs held in common, or actions performed together. These might be communication, creating some common artefact, a common purpose such as study, worship, business, sports, etc. Nationality can be modelled as membership in an E74 Group (cf. HumanML markup). Married couples and other concepts of family are regarded as particular examples of E74 Group.

Examples:

* the impressionists
* the Navajo
* the Greeks
* the peace protestors in New York City on February 15 2003
* Exxon-Mobil
* King Solomon and his wives
* The President of the Swiss Confederation

Properties:

[**P107**](#_P107_has_current) **has current or former member (is current or former member of):** [**E39**](#_E39_Actor_) **Actor**

**(P107.1 kind of member:** [**E55**](#_E55_Type_) **Type)**

## Referred to CIDOC CRM Properties

This section contains the complete definitions of the properties of the CIDOC CRM Conceptual Reference Model version 6.0 referred to by FRBROO. We apply the same format conventions as in section 2.7.

### P1 is identified by (identifies) [+ P2 has string = LRM-R13 has appellation]

[Need to check and clean up the subproperties “is identified by” due to deprecation of the specific types of appellation classes in CRMbase]

Domain: [E1](#_E1_CRM_Entity_) CRM Entity

Range: [E41](#_E41_Appellation_3) Appellation

Superproperty of: E1 CRM Entity. P48 has preferred identifier (is preferred identifier of): E42 Identifier

[**E52**](#_E52_Time-Span) **Time-Span.** [**P78**](#_P78_is_identified) **is identified by (identifies):** [**E49**](#_E49_Time_Appellation) **Time Appellation**

[**E53**](#_E53_Place_) **Place.** [**P87**](#_P87_is_identified) **is identified by (identifies):** [**E44**](#_E44_Place_Appellation) **Place Appellation**

[**E71**](#_E72_Legal_Object_) **Man-Made Thing.** [**P102**](#_P102_has_title) **has title (is title of):** [**E35**](#_E35_Title) **Title**

[**E39**](#_E39_Actor_) **Actor.** [**P131**](#_P131_is_identified) **is identified by (identifies):** [**E82**](#_E82_Actor_Appellation) **Actor Appellation**

[E28](#_E28_Conceptual_Object) Conceptual Object. [P149](#_P149_is_identified) is identified by (identifies): [E75](#_E75_Conceptual_Object_Appellation) Conceptual Object Appellation

Quantification: many to many (0,n:0,n)

Scope note: This property describes the naming or identification of any real world item by a name or any other identifier.

This property is intended for identifiers in general use, which form part of the world the model intends to describe, and not merely for internal database identifiers which are specific to a technical system, unless these latter also have a more general use outside the technical context. This property includes in particular identification by mathematical expressions such as coordinate systems used for the identification of instances of E53 Place. The property does not reveal anything about when, where and by whom this identifier was used. A more detailed representation can be made using the fully developed (i.e. indirect) path through E15 Identifier Assignment.

Examples:

* the capital of Italy (E53) *is identified by “*Rome” (E48)
* text 25014–32 (E33) *is identified by* “The Decline and Fall of the Roman Empire” (E35)

### P15 was influenced by (influenced) [=LRM-R21 work inspiration, the work creation of the new work was influenced by the existing work]

Domain: [E7](#_E7_Activity_) Activity

Range: [E1](#_E1_CRM_Entity_) CRM Entity

Superproperty of: [**E7**](#_E7_Activity_) **Activity.** [**P16**](#_P16__used_) **used specific object (was used for):** [**E70**](#_E70_Thing_1) **Thing**

E7 Activity. P17 was motivated by (motivated): E1 CRM Entity

E7 Activity. P134 continued (was continued by): E7 Activity

E83 Type Creation. P136 was based on (supported type creation): E1 CRM Entity

Quantification: many to many (0,n:0,n)

Scope note: This is a high level property, which captures the relationship between an E7 Activity and anything that may have had some bearing upon it.

The property has more specific sub properties.

Examples:

* the designing of the Sydney Harbour Bridge (E7) *was influenced by* the Tyne bridge (E22)

### P16 used specific object (was used for)

[LRM-R20 Work accompanies /complements Work: includes the case of supplements. There is an intention in the Work Conception itself that the conceived Work will accompany the other Work

In the FRBR-to-FRBRoo mapping we wrote (p. 107 of version 2.4): Work supplements Work => F1 Work P16i was used for (P16.1 mode of use E55 Type "supplemented work") F27 Work Conception R16 initiated F1 Work.

There is a distinct mapping for Work has a complement" on tje same page]

Domain: [E7](#_E7_Activity_) Activity

Range: [E70](#_E70_Thing_1) Thing

Subproperty of: [**E5**](#_E5_Event_) **Event.** [**P12**](#_P12_occurred_in) **occurred in the presence of (was present at):** [**E77**](#_E77_Persistent_Item_1) **Persistent Item**

[**E7**](#_E7_Activity_) **Activity.** [**P15**](#_P15_was_influenced_by_(influenced)) **was influenced by (influenced):** [**E1**](#_E1_CRM_Entity_) **CRM Entity**

Superproperty of:[**E7**](#_E7_Activity_) **Activity.** [**P33**](#_P33_used_specific_) **used specific technique (was used by):** [**E29**](#_E29_Design_or_) **Design or Procedure**

[**E15**](#_E18_Physical_Thing_1) **Identifier Assignment.** [**P142**](#_P148_has_component) **used constituent (was used in):** [**E41**](#_E41_Appellation_3) **Appellation**

Quantification: many to many (0,n:0,n)

Scope note: This property describes the use of material or immaterial things in a way essential to the performance or the outcome of an E7 Activity.

This property typically applies to tools, instruments, moulds, raw materials and items embedded in a product. It implies that the presence of the object in question was a necessary condition for the action. For example, the activity of writing this text required the use of a computer. An immaterial thing can be used if at least one of its carriers is present. For example, the software tools on a computer.

Another example is the use of a particular name by a particular group of people over some span to identify a thing, such as a settlement. In this case, the physical carriers of this name are at least the people understanding its use.

Examples:

* the writing of this scope note (E7) *used specific object* Nicholas Crofts’ computer (E22) *mode of use* Typing Tool; Storage Medium (E55)
* the people of Iraq calling the place identified by TGN ‘7017998’ (E7) used specific object “Quyunjig” (E44) *mode of use Current*; Vernacular (E55)

Properties: P16.1 mode of use: [E55](#_E55_Type_) Type

### P31 has modified (was modified by) [=LRM-R11]

Domain: [E11](#_E11_Modification) Modification

Range: [E24](#_E24_Physical_Man-Made_1) Physical Man-Made Thing

Subproperty of: [**E5**](#_E5_Event_) **Event.** [**P12**](#_P12_occurred_in) **occurred in the presence of (was present at):** [**E77**](#_E77_Persistent_Item_1) **Persistent Item**

Superproperty of:[**E12**](#_E12_Production_) **Production.** [**P108**](#_P108_produced_(was_1) **has produced (was produced by):** [**E24**](#_E24_Physical_Man-Made_1) **Physical Man-Made Thing**

E79 Part Addition. P110 augmented (was augmented by): E24 Physical Man-Made Thing

E80 Part Removal. P112 diminished (was diminished by): E24 Physical Man-Made Thing

Quantification: many to many, necessary (1,n:0,n)

Scope note: This property identifies the E24 Physical Man-Made Thing modified in an E11 Modification.

If a modification is applied to a non-man-made object, it is regarded as an E22 Man-Made Object from that time onwards.

Examples:

* rebuilding of the Reichstag (E11) *has modified* the Reichstag in Berlin (E24)

### P51 has former or current owner (is former or current owner of) [=LRM-R10 Item ownership]

Domain: [E18](#_E18_Physical_Thing_2) Physical Thing

Range: [E39](#_E39_Actor_) Actor

Superproperty of: E18 Physical Thing. P52 has current owner (is current owner of): E39 Actor

Quantification: many to many (0,n:0,n)

Scope note: This property identifies the E39 Actor that is or has been the legal owner (i.e. title holder) of an instance of E18 Physical Thing at some time.

The distinction with *P52 has current owner (is current owner of)* is that *P51 has former or current owner (is former or current owner of)* does not indicate whether the specified owners are current. *P51 has former or current owner (is former or current owner of)* is a shortcut for the more detailed path from E18 Physical Thing through *P24 transferred title of (changed ownership through)*, E8 Acquisition, *P23* *transferred title from (surrendered title through)*, or *P22* *transferred title to (acquired title through)* to E39 Actor.

Examples:

* paintings from the Iveagh Bequest (E18) *has former or current owner* Lord Iveagh (E21)

### P107 has current or former member (is current or former member of) [ LRM-R30 is part of this]

[This covers both membership and structural parts, these are distinct in LRM, need to expand]

[In the has part rltnship there is no implicit Joining event. Look at the examples: the Library of China joined IFLA, the cataloguing Section never did, it was formed as structural part of the organization.

A member existed prior to the Joining event. The has part relationship starts with the Formation event

Although a part can leave the broader structure and become autonomous...

Group merging and splitting: see E81 Transformation, domain is Persistent Item. Consider this as LRM-R32 is restricted to Collective Agents, not Persons. See P151 for Mergers]

Domain: [E74](#_E74_Group_) Group

Range: [E39](#_E39_Actor_) Actor

Quantification: many to many (0,n:0,n)

Scope note: This property relates an E39 Actor to the E74 Group of which that E39 Actor is a member.

Groups, Legal Bodies and Persons, may all be members of Groups. A Group necessarily consists of more than one member.

This property is a shortcut of the more fully developed path from E74 Group through P144 joined with (gained member by), E85 Joining, P143 joined (was joined by) to E39 Actor.

The property P107.1 *kind of member* can be used to specify the type of membership or the role the member has in the group.

Examples:

* Moholy Nagy (E21) *is current or former* *member of* Bauhaus (E74)
* National Museum of Science and Industry (E40) *has current or former member* The National Railway Museum (E40)
* The married couple Queen Elisabeth and Prince Phillip (E74) *has current or former member* Prince Phillip (E21) with P107.1 *kind of member* husband (E55 Type)

Properties: P107.1 *kind of member*: [E55](#_E55_Type_) Type

### P129 is about (is subject of) [=LRM-R12 has as subject]

Domain: [E89](#_E1_CRM_Entity) Propositional Object

Range: [E1](#_E1_CRM_Entity_) CRM Entity

Subproperty: [**E89**](#_E1_CRM_Entity) **Propositional Object.** [**P67**](#_P67_refers_to) **refers to (is referred to by):** [**E1**](#_E1_CRM_Entity_) **CRM Entity**

Quantification: many to many (0,n:0,n)

Scope note: This property documents that an E89 Propositional Object has as subject an instance of E1 CRM Entity.

This differs from P67 refers to (is referred to by), which refers to an E1 CRM Entity, in that it describes the primary subject or subjects of an E89 Propositional Object.

Examples:

* The text entitled ‘Reach for the sky’ (E33) *is about* Douglas Bader (E21)

### P130 shows features of (features are also found on)

[NB: need to check the current text in CRMbase]

[In mapping, used for alternates. The P130.1 could be used to type the level of similarity based on the functional definition of alternates]

Domain: [E70](#_E70_Thing_1) Thing

Range: [E70](#_E70_Thing_1) Thing

Superproperty: E33 Linguistic Object. P73 has translation (is translation of): E33 Linguistic Object

Quantification: many to many (0,n:0,n)

Scope note: This property generalises the notions of "copy of" and "similar to" into a dynamic, asymmetric relationship, where the domain expresses the derivative, if such a direction can be established.

Otherwise, the relationship is symmetric. It is a shortcut of *P15 was influenced by (influenced)* in a creation or production, if such a reason for the similarity can be verified. Moreover it expresses similarity in cases that can be stated between two objects only, without historical knowledge about its reasons.

Examples:

* the Parthenon Frieze on the Acropolis in Athens (E22) *shows features of* the Original Parthenon Frieze in the British museum (E22). *Kind of similarity*: Copy (E55)

Properties: P130.1 kind of similarity: [E55](#_E55_Type_) Type

### P142 used constituent (was used in) [related to LRM-R16 Nomen has part Nomen, also LRM-R17 nomen derivation]

[Actually string of nomen-A *used constituent* string of nomen-B] But the domain of P142 is E15 Identifier Assignment, here we just deal with Nomens. The idea is the same as in Lewis Carroll's portmanteau

Domain: [E15](#_E18_Physical_Thing_1) Identifier Assignment

Range: [E90](#_E90_Symbolic_Object_1) Symbolic Object

Subproperty of: [**E7**](#_E7_Activity_) **Activity.** [**P16**](#_P16_used_specific) **used specific object (was used for):** [**E70**](#_E70_Thing_1) **Thing**

Quantification: (0,n:0,n)

Scope note: This property associates the event of assigning an instance of E42 Identifier with the instances of E90 Symbolic Object that were used as constituents of the identifier.

Examples:

* On June 1, 2001 assigning the personal name identifier “Guillaume, de Machaut, ca. 1300-1377” (E15) *used constituent* “ca. 1300-1377” (E49)
* Assigning a uniform title to the anonymous textual work known as ‘The Adoration of the Shepherds’(E15) *used constituent* ‘Coventry’ (E48)
* Assigning a uniform title to Pina Bausch’s choreographic work entitled ‘Rite of spring’ (E15) *used constituent* ‘(Choreographic Work: Bausch)’(E90)
* Assigning a uniform title to the motion picture directed in 1933 by Merian C. Cooper and Ernest B. Schoedsack and entitled ‘King Kong’ (E15) *used constituent* ‘1933’ (E50)
* Assigning the corporate name identifier ‘Univerza v Ljubljani. Oddelek za bibliotekarstvo’ to The Department for library science of the University of Ljubljana (E15) *used constituent* ‘Univerza v Ljubljani’ (E42)

### P151 was formed from (participated in)

[Relates to LRM-R32, Collective Agents mergers and splits (Sorry, my mistake: it only works for splits if the group that becomes autonomous did not exist within the broader one but is formed from scratch on tbe occasion of the split). As the previous Collective Agent will no longer exist]

Domain: [E66](#_E66_Formation) Formation

Range: [E74](#_E74_Group_) Group

Subproperty of: E5 Event. P11 had participant (participated in): E39 Actor

Quantification: (0,n:0:n)

Scope note: This property associates an instance of E66 Formation with an instance of E74 Group from which the new group was formed preserving a sense of continuity such as in mission, membership or tradition.

Examples:

* The formation of the House of Bourbon-Conti in 1581 (E66) *was formed from* House of Condé (E74)