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#### *About the Institute*

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

(Statements in each descriptor should be limited to 88 characters including imbedded blanks)

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1	Name of the author authors	Use slash not 'and' In case of multiple authors state the first four names and add et-al
2	Year of publication	
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6	(descriptors to be defined by the worker)	
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13	Name of the principal author	Follow Biol. abstracts author index conventions
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1. AND, OR, and NOT, when they immediately precede NOT, (, or a descriptor name are boolean operators.

2. A descriptor range is the totality of characters which occurs between "Descriptor name," and:

i. The next boolean operator

or ii \*

or iii )

A descriptor range is said to be "of the descriptor" whose name immediately precedes.

3. Any legal descriptor range is of the following form: Either

i a descriptor state, abbreviated DS

or ii FROM DS to DS, abbreviated FT

or iii X OR X OR . . . OR X where X is either DS or FT and there are from one to many OR's

Further, in forming the range of a descriptor the states implicated must be states of that descriptor.

4. No descriptor range which contains NOT, ), (, , or AND is legal.

5. A boolean expression is

i. A descriptor-descriptor range

ii. If A is a descriptor-descriptor range, then (A) is a boolean expression and  $(A) \equiv A$  ( $\equiv$  is read "is equivalent to").

iii. If A is a boolean expression then so are

a. (A)

b. NOT(A)

iv. If A and B are boolean expressions then so are

a. (A) AND (B)

b. (A) OR (B)

6. The following hierarchical equivalences obtain. A, B, and C are boolean expressions.

NOT (A) OR (B)	$\equiv$	(NOT(A)) OR (B)
(A) OR NOT (B)	$\equiv$	(A) OR (NOT(B))
NOT(A) AND (B)	$\equiv$	(NOT(A)) AND (B)
(A) AND NOT (B)	$\equiv$	(A) AND (NOT(B))
(A) OR (B) AND (C)	$\equiv$	(A) OR ((B) AND (C))
(A) AND (B) OR (C)	$\equiv$	((A) AND (B)) OR (C)
(A) AND (B) AND (C)	$\equiv$	((A) AND (B)) AND (C)
(A) OR (B) OR (C)	$\equiv$	((A) OR (B)) OR (C)
(A) AND (B) AND (C)	$\equiv$	(A) AND ((B) AND (C))
(A) OR (B) OR (C)	$\equiv$	(A) OR ((B) OR (C))
(A))	$\equiv$	(A)

7. The following Bayesian equivalences obtain.

$A_1, A_2, \dots, A_n$  are boolean expressions,  $n = 2, 3, \dots$

$\text{NOT} ((A_1) \text{ AND } (A_2) \text{ AND } \dots \text{ AND } (A_n)) \equiv (\text{NOT}(A_1)) \text{ OR } (\text{NOT}(A_2)) \text{ OR } \dots \text{ OR } (\text{NOT}(A_n))$

$\text{NOT} ((A_1) \text{ OR } (A_2) \text{ OR } \dots \text{ OR } (A_n)) \equiv (\text{NOT}(A_1)) \text{ AND } (\text{NOT}(A_2)) \text{ AND } \dots \text{ AND } (\text{NOT}(A_n))$

8. Any expression equivalent to a boolean expression is a boolean expression.

If  $A \equiv B$  and  $A$  occurs in a boolean expression  $C$ ,  $B$  may replace  $A$  in  $C$  to get an expression  $D$ ; and  $C \equiv D$ .

9. Any expression containing any of the following combinations is not a boolean expression:

)NOT, NOT AND, NOT OR, AND AND, AND OR, OR OR, OR AND, NOT ), (AND, (OR, AND), OR), DS NOT, DS(, ), ().