

600.226: Data Structures

Handout 1

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Here are algebraic specifications for some of the abstract data types (ADTs) we discussed in class. Feel free to ignore the **aka** and **awa** notes. And please let me know if you find any errors!

adt Boolean	
defines	
Boolean	
operations	
true: \rightarrow Boolean	
false: \rightarrow Boolean	
not: Boolean \rightarrow Boolean	aka \neg
and: Boolean \times Boolean \rightarrow Boolean	aka \wedge
or: Boolean \times Boolean \rightarrow Boolean	aka \vee
equal: Boolean \times Boolean \rightarrow Boolean	aka $=$
axioms	
not(true) = false	
not(false) = true	awa not(false)
and(true, true) = true	awa and(true, true)
and(true, false) = false	
and(false, true) = false	
and(false, false) = false	
or(true, true) = true	awa or(true, true)
or(true, false) = true	awa or(true, false)
or(false, true) = true	awa or(false, true)
or(false, false) = false	
equal(true, true) = true	awa equal(true, true)
equal(true, false) = false	
equal(false, true) = false	
equal(false, false) = true	awa equal(false, false)

Figure 1: The abstract data type Boolean.

