Examples of the (nested) Semantic Properties Necessity, Impossibility, Validity, and Equivalence that depend on the meaning of:

(1) just the Sentential Conectives ($\neg,\wedge,\vee,\rightarrow$),

(2) the Sentential Connectives and the symbols of First-Order Logic (FOL) ($\neg,\wedge,\vee,\rightarrow$ plus $=,\forall,\exists$), and

(3) the Sentential Connectives, the symbols of First-Order Logic, and descriptive terms (constants and predicates) ($\neg,\wedge,\vee,\rightarrow,=,\forall,\exists$ plus *LeftOf, RoghtOf, Cube, Tet, Dodec, Small, Large, Larger, SameSize*)

	Necessary formulas, sentences	Impossible formulas, sentences	Valid arguments	Equivalent pairs of formulas, sentences
Depending on: $\neg,\wedge,\vee,\rightarrow$ ("sentential", "propositional" "Tautological")	$A\vee\neg A$ $A\rightarrow A$ $(A\wedge B)\rightarrow B$ (Tautologies)	$A\wedge\neg A$ $\neg(A\rightarrow A)$ $\neg(A\vee\neg A)$	$A\wedge B/\therefore A$ $A,A\rightarrow B/\therefore B$ $A\vee B,\neg B/\therefore A$ (**Taut**ological **Con**sequences)	$A\wedge B :: B\wedge A$ $A\rightarrow B :: \neg A\vee B$ $\neg(A\wedge B) :: \neg A\vee\neg B$ (Tautological Equivalents)
Depending on: $=,\forall,\exists$ ("formal", "logical", "first-order")	$c=c$ $\forall x\exists y(x=y)$ $\forall xF(x)\rightarrow\exists xF(x)$ $\forall x(F(x)\vee\neg F(x))$ (FOL truths)	$c\neq c$ $\forall xF(x)\wedge\neg\exists xF(x)$ $\neg\exists x(x=x)$ $\exists x(F(x)\wedge\neg F(x))$	$a=b,F(a)/\therefore F(b)$ $\forall x(F(x)\wedge G(x))/\therefore\exists xFx$ $\exists xF(x)/\therefore\exists x(F(x)\vee G(x))$ $\forall x(F(x)\rightarrow G(x)),\exists xF(x)/\therefore\exists xG(x)$ (**FOL Con**sequences)	$\neg\forall xF(x) :: \exists x\neg F(x)$ $\neg\exists xF(x) :: \forall x\neg F(x)$ $\neg\exists x(F(x)\wedge G(x)) :: \forall x(F(x)\rightarrow\neg G(x))$ $\neg\forall x(F(x)\rightarrow G(x)) :: \exists x(F(x)\wedge\neg G(x))$ (FOL Equivalents)
Depending on: Constants, Predicates ("descriptive", "analytic")	LeftOf(x,y)$\rightarrow$RightOf(y,x) a=b$\rightarrow$SameSize(a,b) Cube(x)$\vee$Tet(x)$\vee$Dodec(x) (Analytic Truths)	Cube(x)$\wedge$Tet(x) LeftOf(x,x) Small(x)$\wedge$Large(x) (Analytic Impossiblities)	Cube(x)/$\therefore\neg$Tet(x) LeftOf(x,y),LeftOf(y,z)/$\therefore$LeftOf(x,z) Small(x),Large(y)/$\therefore$Larger(y,x) (**Ana**lytic **Con**sequences)	LeftOf(x,y) :: RightOf(y,x) Cube(x) :: $\neg$(Tet(x)$\wedge$Dodec(x)) SameSize(x,y) :: $\neg$(Larger(x,y)$\wedge$Smaller(x,y)) (Analytic Equivalents)