Assignment 1. grammaticality and grammar

A. Mark the following sentences as grammatical or ungrammatical:

grammatical: (1) Wash your own monkey's ears.
ungrammatical: (2) Wash your monkey's own ears.
grammatical: (3) Harvey wants me to wash myself.
ungrammatical: (4) I want Harvey to wash myself.
ungrammatical: (5) The rumor that I was dead surprised myself.
grammatical: (6) A pig that the sky is blue is a happy pig.
grammatical: (7) A pig that can fly is a happy pig.
grammatical: (8) It was me.
grammatical: (9) There were assumed to be errors in the proof.
grammatical: (10) The errors were assumed to be in the first two steps.
grammatical: (11) There weren't any errors, were there?
grammatical: (13) The children aren't going to be hard to persuade to paint themselves blue.
ungrammatical: (14) The children aren't going to be hard to promise to paint themselves blue.
grammatical: (15) Bob seems to want to like abstract art.
grammatical: (16) Bob wants to seem to like abstract art.
grammatical: (17) Bob wants to seem to want to like abstract art.
ungrammatical: (18) Bob wants to seem to persuade to like abstract art.
grammatical: (19) Andy tends to be easy to persuade to like any kind of food.
grammatical: (20) Andy tends to be likely to persuade to like any kind of food.
grammatical: (21) Andy tends to be likely to pretend to like whatever is put before him.
grammatical: (22) I have an old tin can to keep my money in.

Discuss anything you find interesting.

I find the phrase "to be easy to persuade" plus an infinitive verb in (19) to be grammatical, but not "to seem to persuade" plus an infinitive verb in (18). The difference seems to be that "to be easy to" turns the subject of (19) into the object of persuasion, where as in the subject of (18) is still the subject of persuasion, and a verb like to persuade needs an object.
(I assumed in this assignment that correct transitivity and pronoun binding are part of grammaticality since we did not learn what kind of rules determine grammaticality)

B. Given the following Phrase Structure Grammar and the Lexicon below:
S  \rightarrow  NP \ VP
NP \rightarrow  (D) N
VP  \rightarrow  V (NP)

N: pig, answer, pitchfork
V: knew, lied, came, became
D: a, the

For each of the sentences given below,
(i)   Is it grammatical?
(ii)  Is it generated by the grammar?
(iii) If the answers to (i) and (ii) are different, propose a modification to the grammar. Discuss the consequences.

NOTE: This asks for a modification to the GRAMMAR. Don't modify the examples.

(1)  The pig knew the answer.
   (i) grammatical
   (ii) yes
(2)  The answer knew the pig.
   (i) grammatical
   (ii) yes
(3)  Knew the answer the pig.
   (i) ungrammatical
   (ii) no
(4)  Knew the pig the answer.
   (i) ungrammatical
   (ii) no
(5)  The pig lied.
   (i) grammatical
   (ii) yes
(6)  The pitchfork lied the pig.
   (i) ungrammatical
   (ii) yes
   (iii) "Lied" is an intransitive verb that does not take a direct object.
I propose to move this kind of verbs like "lied" and "come" to a category called IV (intransitive verb), and change the definition of VP to
   \[ VP  \rightarrow  \{V (NP), IV\} \]
   This will prevent the grammar from generating sentences with an intransitive verb followed by an NP.
(7)  The pig lied the pitchfork.
   (i) ungrammatical
   (ii) yes
   (iii) Same as in (6)
(8)  Pig the pitchfork the lied the.
(i) ungrammatical
(ii) no
(9) The pig came a pitchfork.
   (i) ungrammatical
   (ii) yes
   (iii) same as in (6) because "came" is also an intransitive verb.
(10) The pig became a pitchfork.
   (i) grammatical
   (ii) yes
(11) The pig became.
   (i) ungrammatical
   (ii) yes
   (iii) "Became" is a transitive verb that requires a direct object.
       I propose to move "became" to a category called TV
       (transitive verb) and modify VP to be
       \[ VP \rightarrow \{ V \ (NP), \ IV, \ TV \ NP \} \]
       so the grammar will not generate transitive verbs without a
       following noun phrase
(12) An answer came to the pig.
   (i) grammatical
   (ii) no
   (iii) I propose to create a category called P (preposition) that
       includes "to" and another category PP (prepositional phrase) defined
       as
       \[ PP \rightarrow P \ NP \]
       and then modify the definition of VP to allow IV to be
       followed by an optional PP
       \[ VP \rightarrow \{ V \ (NP), \ IV \ (PP), \ TV \ NP \} \]
       so the grammar will allow an intransitive verb followed by a
       prepositional phrase.
(13) The pitchfork lied to the pig.
   (i) grammatical
   (ii) no
   (iii) same as in (12)
(14) My pig lied to my pitchfork.
   (i) grammatical
   (ii) no
   (iii) I proposed to add "my" to the category D so that "my" plus N
       will be considered a NP.