CSC356: Generative Processes and Formal Systems

Little Musical CFG/CFL Assignment

Ace DeSiena - Feb 2015

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\xrightarrow{1} bar bar bar bar bar bar bar
melody
           \xrightarrow{4} bar3 bar bar bar bar bar bar
            \stackrel{8}{\rightarrow} (3 p3 d3) bar bar bar bar bar bar
            \xrightarrow{12} ( 3 pitch pitch pitch d3 ) bar bar bar bar bar bar
            \xrightarrow{27} ( 3 g pitch pitch d3 ) bar bar bar bar bar bar
            \xrightarrow{24} (3 g d pitch d3) bar bar bar bar bar bar
            \xrightarrow{25} (3 g d e d3) bar bar bar bar bar bar
            \xrightarrow{16} (3 g d e h q q ) bar bar bar bar bar bar
            \stackrel{3}{\rightarrow} (3 g d e h q q ) bar2 bar bar bar bar bar
            \stackrel{7}{\rightarrow} (3 g d e h q q ) (2 p2 d2) bar bar bar bar bar
            \xrightarrow{11} (3 g d e h q q ) (2 pitch pitch d2) bar bar bar bar bar
            \stackrel{24}{\longrightarrow} (3 g d e h q q ) (2 d pitch d2) bar bar bar bar bar bar
            \xrightarrow{26} (3 g d e h q q ) (2 d f d2) bar bar bar bar bar
            \xrightarrow{15} (3 g d e h q q ) (2 d f h h ) bar bar bar bar bar
            \stackrel{5}{\rightarrow} (3 g d e h q q ) (2 d f h h ) bar4 bar bar bar bar
            \stackrel{9}{\rightarrow} (3 g d e h q q ) (2 d f h h ) (4 p4 d4) bar bar bar bar bar
            \xrightarrow{13} (3 g d e h q q ) (2 d f h h ) (4 pitch pitch pitch pitch d4) bar bar bar bar
            \xrightarrow{25} (3 g d e h q q ) (2 d f h h ) (4 e pitch pitch pitch d4) bar bar bar bar
            \xrightarrow{25} (3 g d e h q q ) (2 d f h h ) (4 e e pitch pitch d4) bar bar bar bar
            \xrightarrow{23} (3 g d e h q q ) (2 d f h h ) (4 e e c pitch d4) bar bar bar bar
            \xrightarrow{24} (3 g d e h q q ) (2 d f h h ) (4 e e c d d4) bar bar bar bar bar
            \xrightarrow{19} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) bar bar bar bar
           \stackrel{2}{\rightarrow} (3 g d e h q q ) (2 d f h h ) (4 e e c d q q q q ) bar1 bar bar bar
            \xrightarrow{6} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 p1 d1 ) bar bar bar
            \xrightarrow{10} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 pitch d1 ) bar bar bar
            \xrightarrow{28} (3 g d e h q q ) (2 d f h h ) (4 e e c d q q q q ) (1 a d1) bar bar bar
            \xrightarrow{14} (3 g d e h q q ) (2 d f h h ) (4 e e c d q q q q ) (1 a w ) bar bar bar
            \stackrel{3}{\rightarrow} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) bar2 bar bar bar
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\stackrel{3}{\rightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 p2 d2 ) bar bar
\xrightarrow{11} (3 g d e h q q ) (2 d f h h ) (4 e e c d q q q q ) (1 a w ) (2 pitch pitch d2) bar bar
\stackrel{25}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e pitch d2 ) bar bar
\stackrel{29}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b d2 ) bar bar bar
\xrightarrow{15} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) bar bar
\stackrel{5}{\rightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) bar4 bar bar
\stackrel{9}{\rightarrow} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 p4 d4) bar bar
\xrightarrow{13} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 pitch pitch pitch pitch d4
\stackrel{24}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) ( 4 d pitch pitch pitch d4 ) b
\stackrel{28}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) ( 4 d a pitch pitch d4 ) bar h
\stackrel{26}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) ( 4 d a f pitch d4 ) bar bar
\stackrel{23}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) ( 4 d a f c d4 ) bar bar
 \stackrel{19}{\longrightarrow} (\ 3\ g\ d\ e\ h\ q\ q\ )\ (\ 2\ d\ f\ h\ h\ )\ (\ 4\ e\ e\ c\ d\ q\ q\ q\ )\ (\ 1\ a\ w\ )\ (\ 2\ e\ b\ h\ h\ )\ (\ 4\ d\ a\ f\ c\ q\ q\ q\ q\ )\ bar\ bar\ a
\stackrel{4}{\rightarrow} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q) bar3 bar
\xrightarrow{8} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 p3 d3
\xrightarrow{12} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 pitch
\stackrel{23}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) ( 4 d a f c q q q q ) ( 3 c pite
\stackrel{28}{\longrightarrow} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a p
\xrightarrow{27} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a g
\xrightarrow{17} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a g
\stackrel{4}{\rightarrow} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a g
\stackrel{4}{\to} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a g
\stackrel{4}{\to} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a g
\stackrel{26}{\longrightarrow} (3 g d e h q q ) (2 d f h h ) (4 e e c d q q q q ) (1 a w ) (2 e b h h ) (4 d a f c q q q q ) (3 c a g
\stackrel{29}{\longrightarrow} ( 3 g d e h q q ) ( 2 d f h h ) ( 4 e e c d q q q q ) ( 1 a w ) ( 2 e b h h ) ( 4 d a f c q q q q ) ( 3 c a g
\xrightarrow{25} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a g
\xrightarrow{25} (3 g d e h q q) (2 d f h h) (4 e e c d q q q q) (1 a w) (2 e b h h) (4 d a f c q q q q) (3 c a g
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