

[20465001]

A person who is born with one defective copy of a suppressor gene , or in whom one copy is damaged early in life , is especially prone to cancer because he need only lose the other copy for a cancer to develop .

[20465018]

Emerging genetic tests will be able to spot such cancer-susceptible individuals , ushering in what some scientists believe is a new age of predictive cancer diagnosis .

[20465019]

Bill and Bonnie Quinlan are among the first beneficiaries of the new findings .

[20465020]

The Dedham , Mass. , couple knew even before Bonnie became pregnant in 1987 that any child of theirs had a 50 % chance of being at risk for retinoblastoma , an eye cancer that occurs about once every 20,000 births .

[20465021]

Mr. Quinlan , 30 years old , knew he carried a damaged gene , having lost an eye to the rare tumor when he was only two months old - after his mother had suffered the same fate when she was a baby .

[20465022]

Because of the isolation of the retinoblastoma tumor-suppressor gene , it became possible last January to find out what threat the Quinlan baby faced .

[20465023]

A test using new " genetic probes " showed that little Will Quinlan had not inherited a damaged retinoblastoma supressor gene and , therefore , faced no more risk than other children of developing the rare cancer .

[20465024]

" It made our New Year , " says Mr. Quinlan .

[20465025]

This test was the first to predict reliably whether an individual could expect to develop cancer .

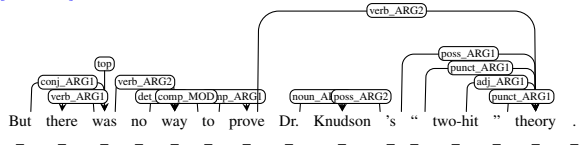
[20465026]

Equally important , the initial discovery of the gene that controls retinal cell growth , made by a Boston doctor named Thaddeus Dryja , has opened a field of cancer study , which in recent months has exploded .

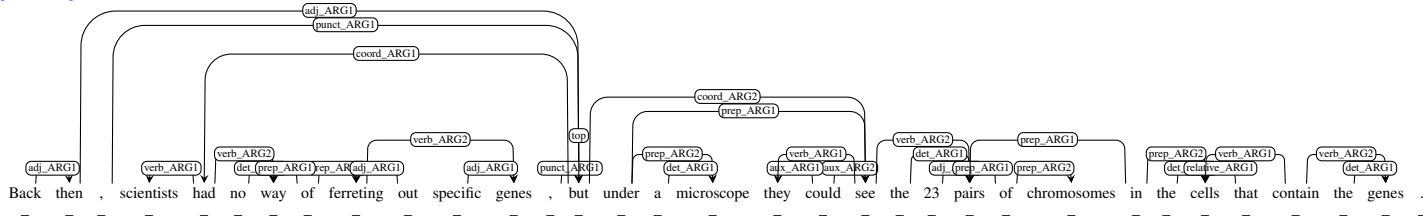
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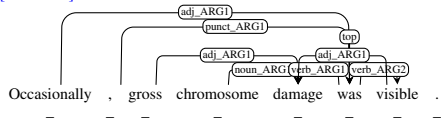
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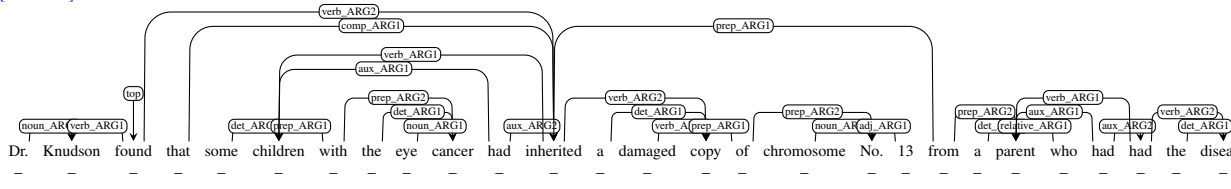
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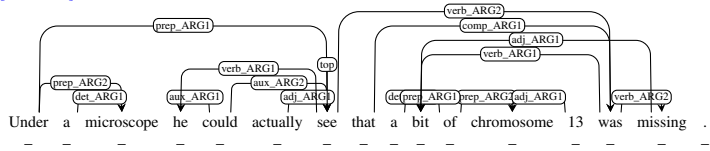
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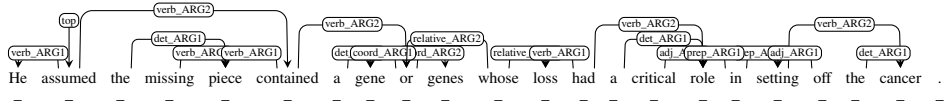
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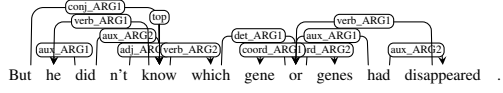
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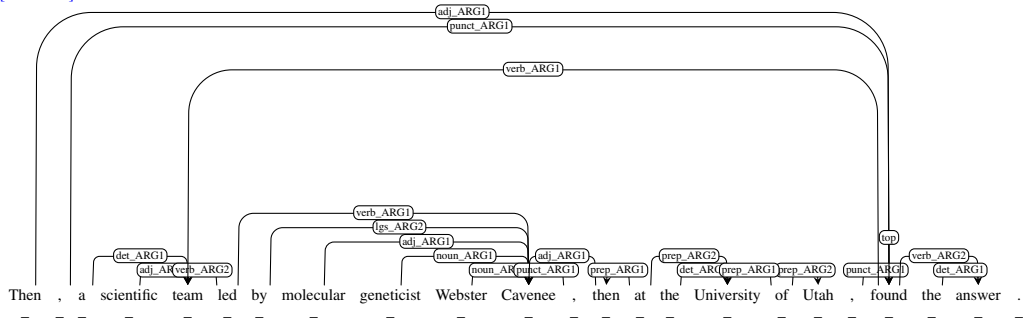
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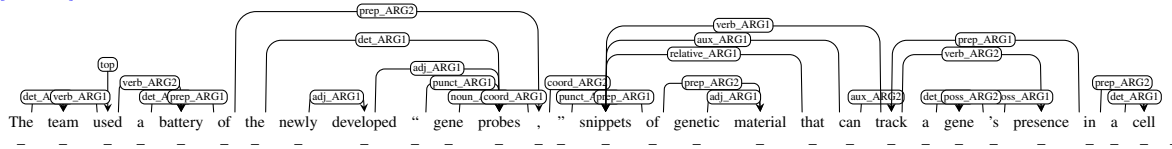
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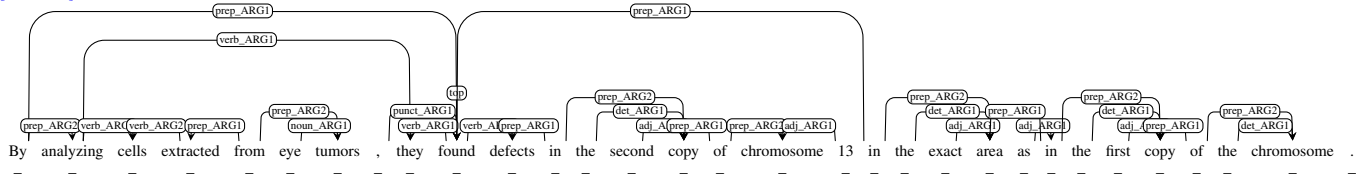
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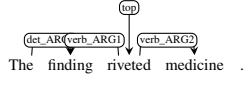
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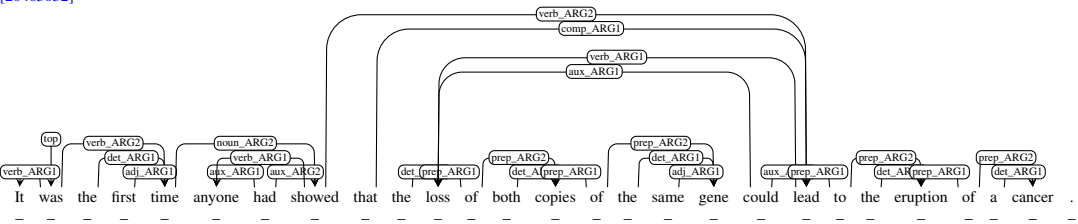
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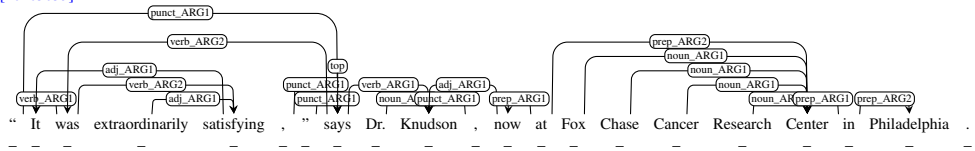
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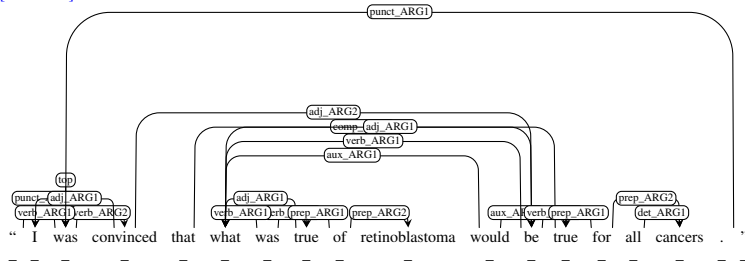
[20465052]



[20465053]



[20465054]



[20465055]

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verb_ARG1
It was an audacious claim .
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[20465056]
But in Baltimore , Dr. Vogelstein , a young molecular biologist at Johns Hopkins Medical School , believed Dr. Knudson was right , and set out to repeat the Cavenee experiment in cells from other cancers .
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[20465057]
His was one of two research teams in 1984 to report dual chromosome losses for a rare childhood cancer of the kidney called Wilm 's tumor .
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[20465058]
Dr. Vogelstein next turned his attention to colon cancer , the second biggest cancer killer in the U.S. after lung cancer .
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[20465059]
He believed colon cancer might also arise from multiple " hits " on cancer suppressor genes , because it often seems to develop in stages .
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[20465060]
It often is preceded by the development of polyps in the bowel , which in some cases become increasingly malignant in identifiable stages - progressing from less severe to deadly - as though a cascade of genetic damage might be occurring .
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[20465061]
Dr. Vogelstein and a doctoral student , Eric Fearon , began months of tedious and often frustrating probing of the chromosomes searching for signs of genetic damage .
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[20465062]
They began uncovering a confusing variety of genetic deletions , some existing only in benign polyps , others in malignant cells and many in both polyps and malignant cells .
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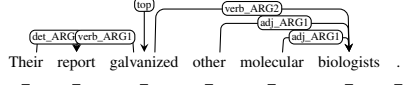
[20465063]
Gradually , a coherent picture of cancer development emerged .
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[20465064]
If both copies of a certain gene were knocked out , benign polyps would develop .
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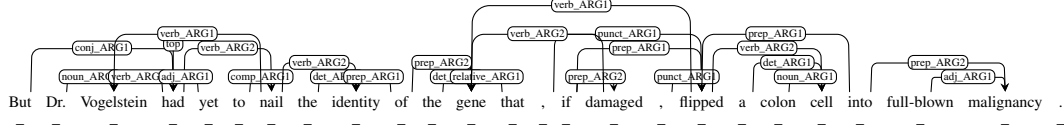
[20465065]
If both copies of a second gene were then deleted , the polyps would progress to malignancy .
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[20465066]
It was clear that more than one gene had to be damaged for colon cancer to develop .
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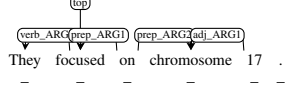
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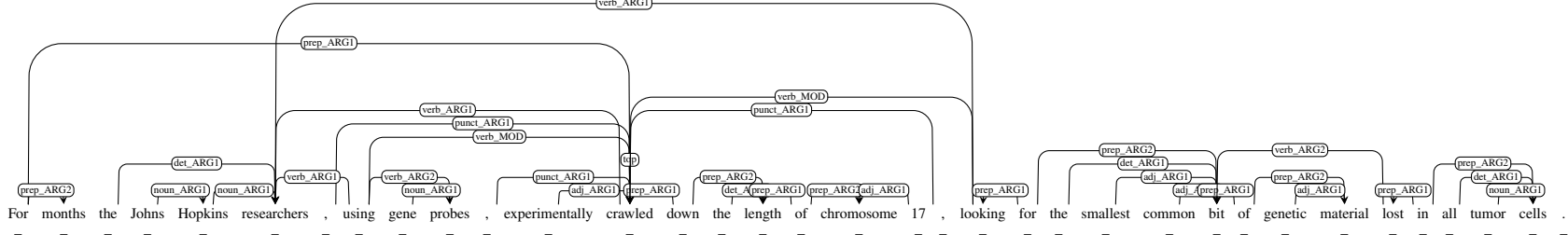
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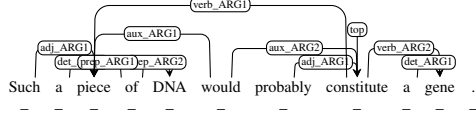
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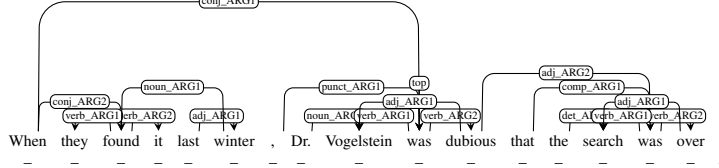
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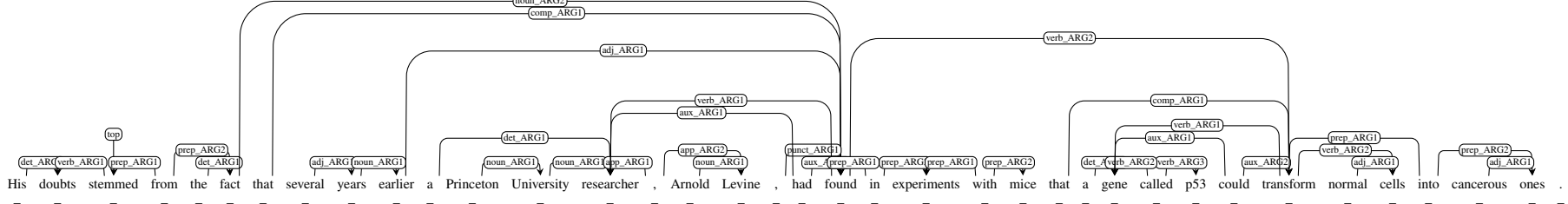
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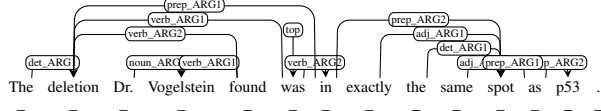
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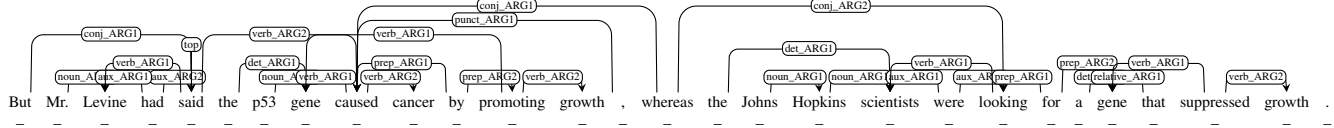
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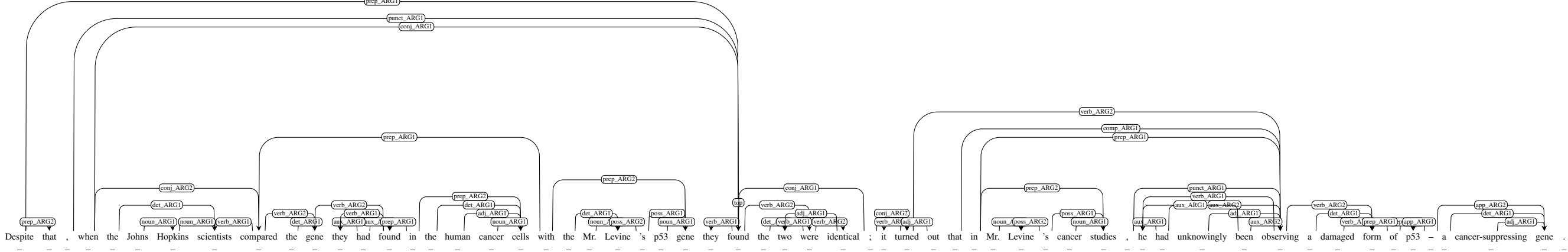
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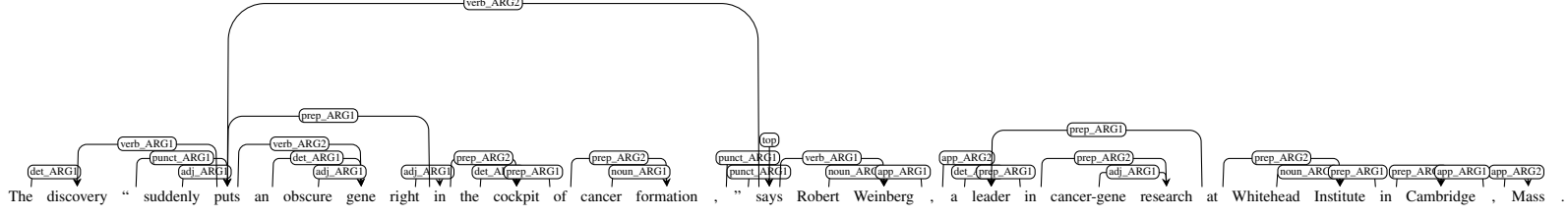
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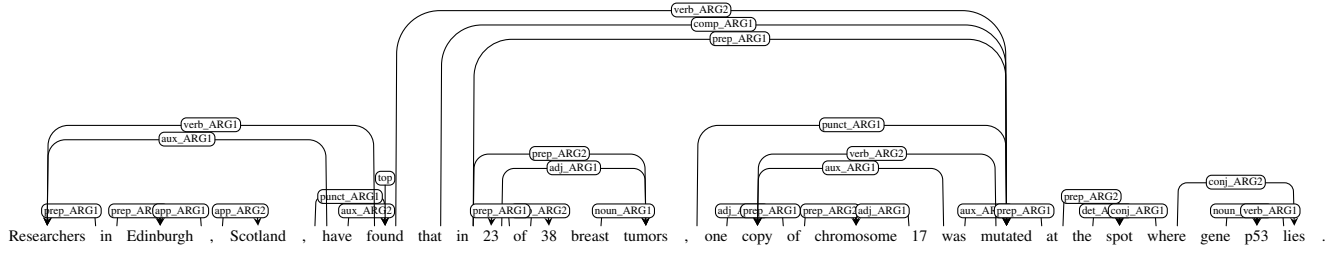
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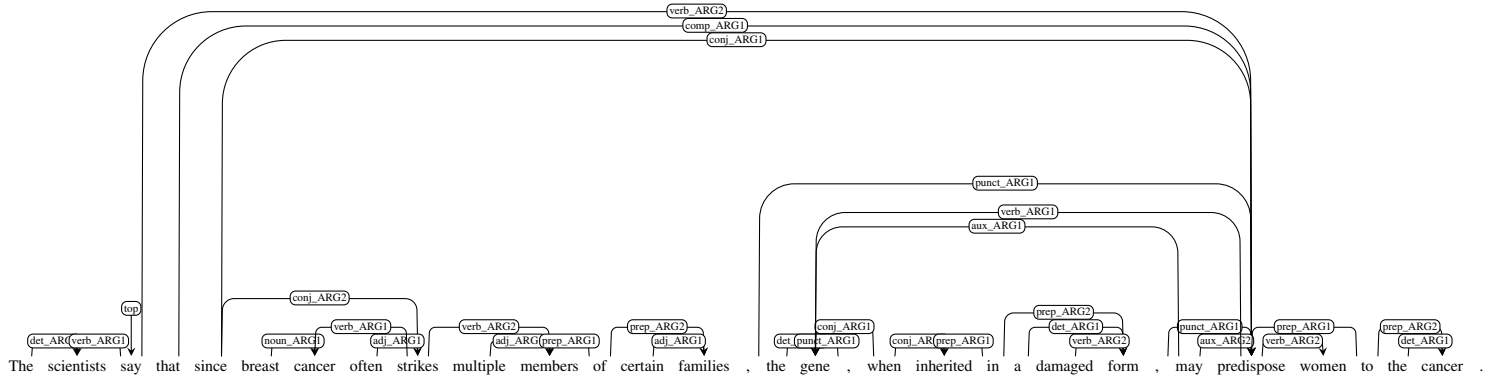
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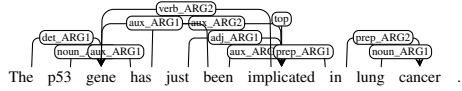
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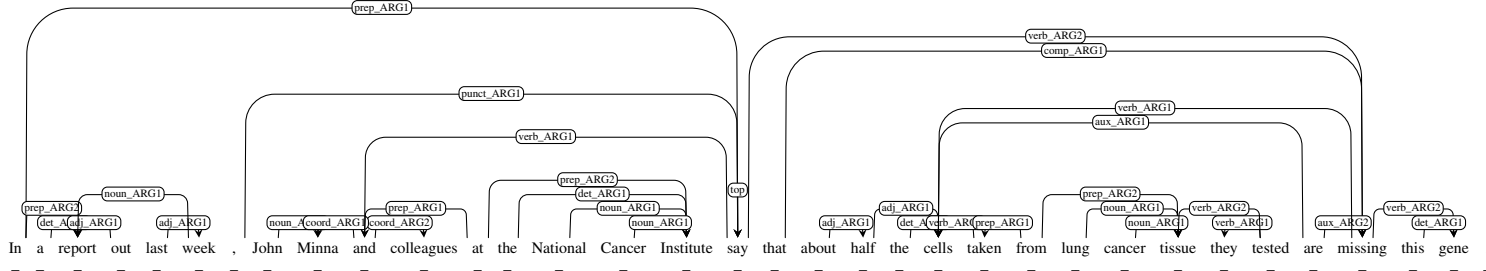
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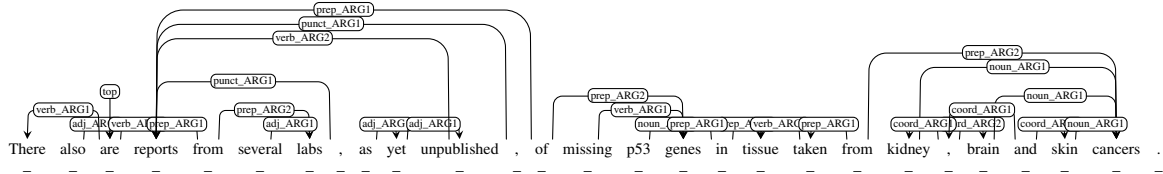
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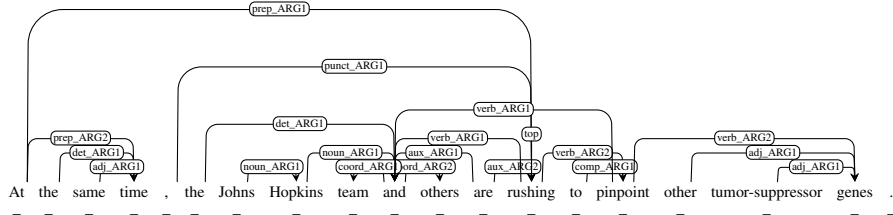
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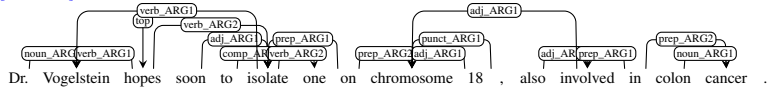
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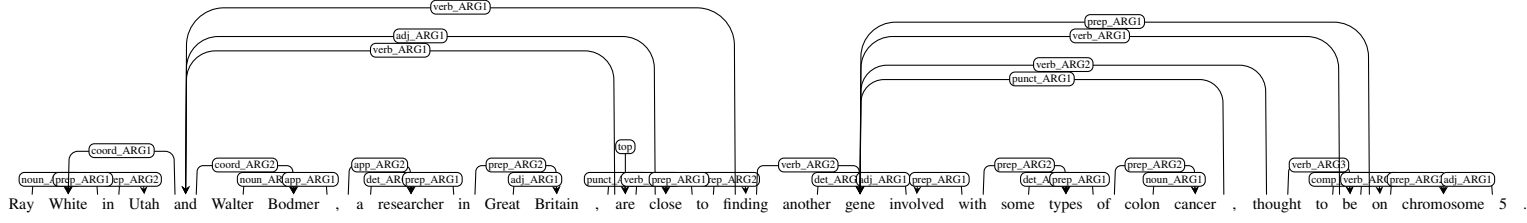
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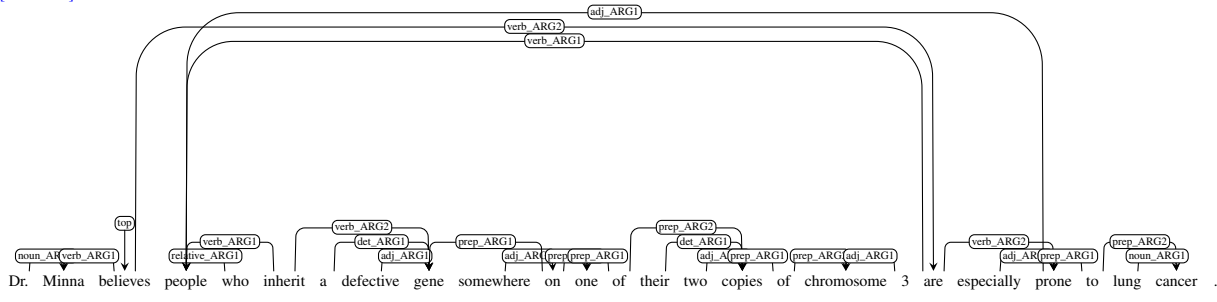
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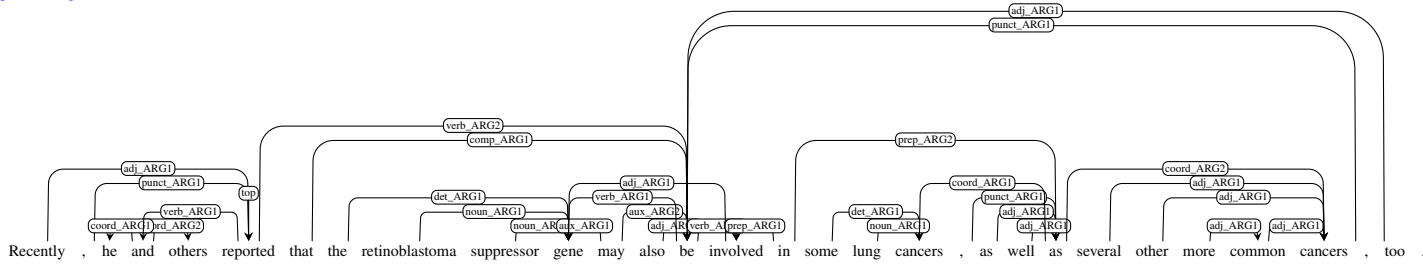
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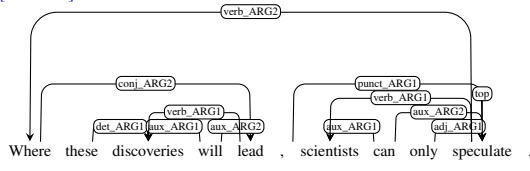
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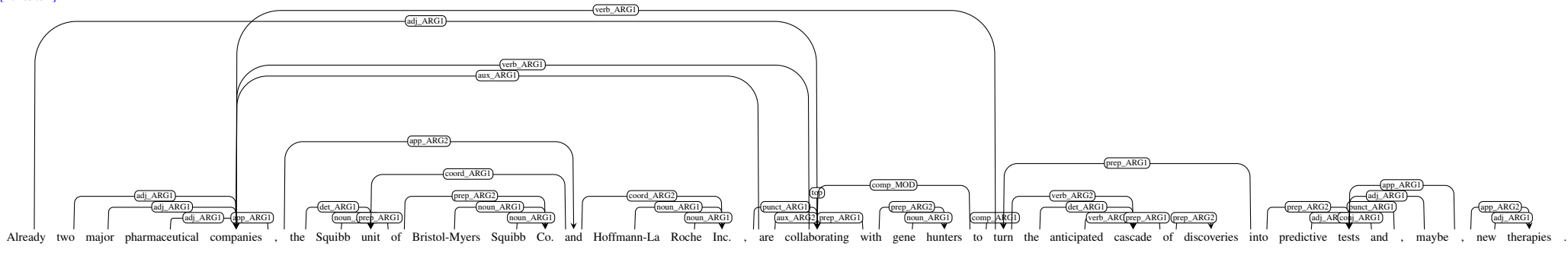
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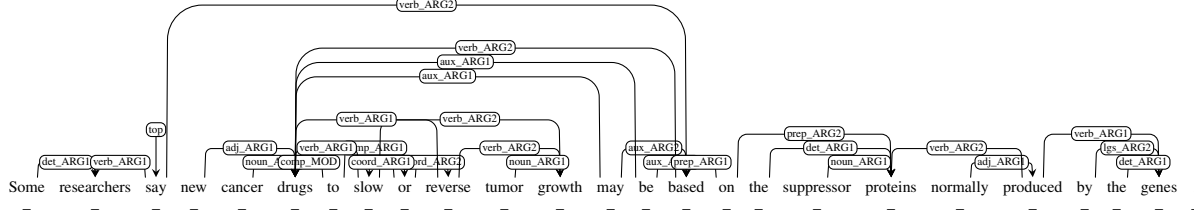
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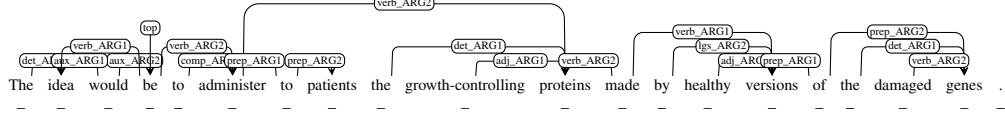
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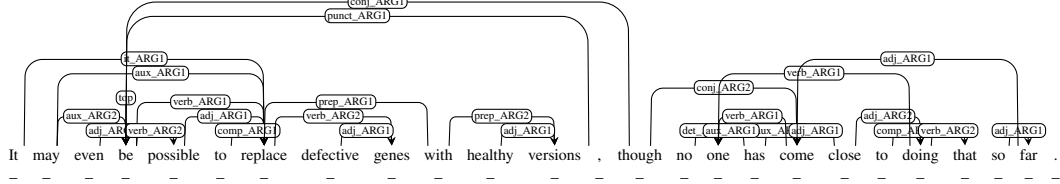
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