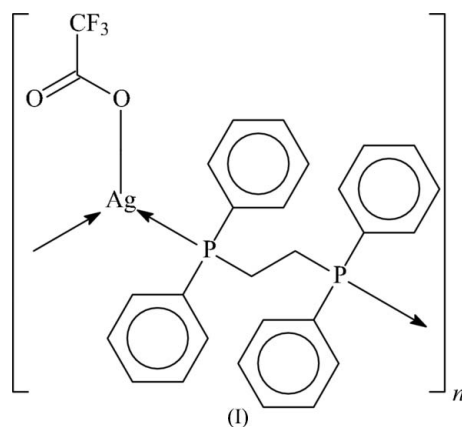


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**Key indicators**Single-crystal X-ray study  
 $T = 295$  K  
Mean  $\sigma(\text{C}-\text{C}) = 0.007$  Å  
 $R$  factor = 0.046  
 $wR$  factor = 0.147  
Data-to-parameter ratio = 17.3For details of how these key indicators were automatically derived from the article, see <http://journals.iucr.org/e>.**catena-Poly[[trifluoroacetato- $\kappa$ O]silver(I)- $\mu$ -1,2-bis(diphenylphosphino)ethane- $\kappa^2$ P:P']**In polymeric  $[\text{Ag}(\text{C}_2\text{F}_3\text{O}_2)(\text{C}_{26}\text{H}_{24}\text{P}_2)]_n$ , the carboxylate is monodentate to silver, and the two diphosphine ligands that occupy different positions of  $\bar{1}$  site symmetry link the  $\text{Ag}(\text{C}_2\text{O}_2\text{F}_3)$  units into a chain. The Ag atom shows trigonal-planar coordination.Received 8 November 2005  
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Online 19 November 2005**Comment**

Silver(I) acetate, when reacted with triphenylphosphine, affords adducts with different metal–ligand stoichiometries, whereas silver(I) trifluoroacetate yields only the 1:2 adduct. The silver is four-coordinate in the trifluoroacetate-chelated monomeric adduct (Ng, 1998). The flexible diphosphine 1,6-bis(diphenylphosphino)hexane furnishes a 1:3 adduct, and the fourth coordination site of the tetrahedral environment arises from coordination by a monodentate carboxylate (Brandys &amp; Puddephatt, 2002). The smaller 1,2-bis(diphenylphosphino)ethane donor ligand in the title compound, (I), does not function in a chelating mode. The two independent ligands lie on inversion sites so that the manner of bridging leads to a chain motif (Fig. 1). On the other hand, the rigid diphosphine 1,2-bis(diphenylphosphino)ethene, which also exists in a 1:1 adduct, has both the phosphine ligand and the trifluoroacetate group functioning in a bridging mode (Brandys &amp; Puddephatt, 2002).

**Experimental**

Silver trifluoroacetate (11 mg, 0.05 mmol) dissolved in methanol (3 ml) was mixed with 1,2-bis(diphenylphosphino)ethane (20 mg, 0.05 mmol) dissolved in DMF (3 ml) to give a yellow solution. The solution was filtered and then layered with diethyl ether. Colorless crystals were obtained after several days.

Crystal data

[Ag(C<sub>2</sub>F<sub>3</sub>O<sub>2</sub>)(C<sub>26</sub>H<sub>24</sub>P<sub>2</sub>)]  
*M<sub>r</sub>* = 619.28  
 Triclinic, *P*1̄  
*a* = 10.105 (1) Å  
*b* = 11.095 (2) Å  
*c* = 12.677 (2) Å  
 α = 84.697 (2)°  
 β = 79.043 (2)°  
 γ = 73.712 (2)°  
*V* = 1338.1 (3) Å<sup>3</sup>

*Z* = 2  
*D<sub>x</sub>* = 1.537 Mg m<sup>-3</sup>  
 Mo *K*α radiation  
 Cell parameters from 870 reflections  
 θ = 2.5–26.8°  
 μ = 0.92 mm<sup>-1</sup>  
*T* = 295 (2) K  
 Plate, colorless  
 0.48 × 0.42 × 0.12 mm

Data collection

Bruker SMART area-detector diffractometer  
 φ and ω scans  
 Absorption correction: multi-scan (SADABS; Sheldrick, 1996)  
*T<sub>min</sub>* = 0.667, *T<sub>max</sub>* = 0.898  
 9445 measured reflections

5624 independent reflections  
 4418 reflections with *I* > 2σ(*I*)  
*R<sub>int</sub>* = 0.021  
 θ<sub>max</sub> = 27.0°  
*h* = -11 → 12  
*k* = -14 → 14  
*l* = -13 → 16

Refinement

Refinement on *F*<sup>2</sup>  
*R*[*F*<sup>2</sup> > 2σ(*F*<sup>2</sup>)] = 0.046  
*wR*(*F*<sup>2</sup>) = 0.147  
*S* = 1.01  
 5624 reflections  
 325 parameters  
 H-atom parameters constrained

$w = 1/[\sigma^2(F_o^2) + (0.0953P)^2 + 0.9973P]$   
 where  $P = (F_o^2 + 2F_c^2)/3$   
 (Δ/σ)<sub>max</sub> = 0.001  
 Δρ<sub>max</sub> = 1.64 e Å<sup>-3</sup>  
 Δρ<sub>min</sub> = -0.75 e Å<sup>-3</sup>

Table 1

Selected geometric parameters (Å, °).

Ag1–O1	2.392 (4)	Ag1–P2	2.428 (1)
Ag1–P1	2.424 (1)		
O1–Ag1–P1	112.2 (2)	P1–Ag1–P2	134.97 (3)
O1–Ag1–P2	112.2 (2)		

The aromatic C–C distances were restrained to 1.390 (5) Å and the aliphatic C–C distances to 1.540 (5) Å. H atoms were placed at calculated positions (C–H<sub>aromatic</sub> = 0.93, C–H<sub>aliphatic</sub> = 0.97 Å) and were included in the refinement in the riding-model approximation with *U*<sub>iso</sub>(H) set to 1.2*U*<sub>eq</sub>(C). The displacement parameters of the O and F atoms were restrained to a nearly isotropic behavior. The final Fourier map had a large peak about 1.86 Å from F2, but the electron density could not be modeled as water. The electron density was about 2 Å from its symmetry-related equivalent. Furthermore, the solvent-accessible void, as calculated by *PLATON* (Spek, 2003), is too small to accommodate water, and neither does the center of the void coincide with the peak. Additionally, the presence of water was ruled out by the absence of the characteristic broad peak at 3500 cm<sup>-1</sup> in the IR spectrum of the bulk crystals.

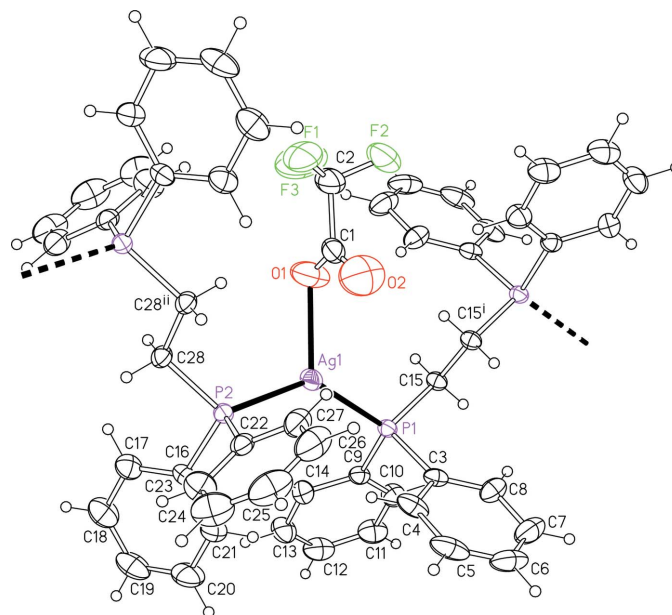


Figure 1

ORTEPII (Johnson, 1976) plot of a portion of the polymeric chain of (I). Displacement ellipsoids are drawn at the 50% probability level, and H atoms are shown as spheres of arbitrary radii. [Symmetry codes: (i) 1 - *x*, 1 - *y*, -*z*; (ii) -*x*, 1 - *y*, 1 - *z*.]

Data collection: *SMART* (Bruker, 2000); cell refinement: *SAINT* (Bruker, 2000); data reduction: *SAINT*; program(s) used to solve structure: *SHELXS97* (Sheldrick, 1997); program(s) used to refine structure: *SHELXL97* (Sheldrick, 1997); molecular graphics: *ORTEPII* (Johnson, 1976); software used to prepare material for publication: *SHELXL97*.

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